Clinton County Compost Facility
Plattsburgh, New York

Proposed Permit Modifications for Alkaline Treatment System

Permit No. 5-0942-00006/00006

September 2009

Report

Information in this report was prepared by or under the direction of Daniel D. Durfee, a registered engineer in the State of New York.

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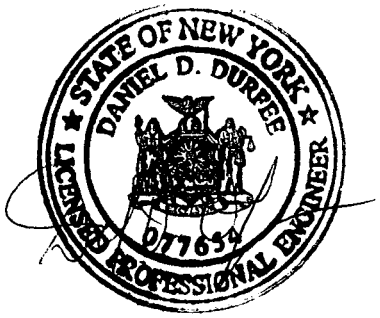

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PROPOSED PERMIT MODIFICATIONS

Permit No. 5-0942-00006/00006
Clinton County Compost Facility
Plattsburgh, New York

INTRODUCTION

The Clinton County Compost Facility (CCCF), located in the Town of Plattsburgh as shown in Figure 1, has a solid waste management facility permit that authorizes in-vessel composting of up to 28 dtpd of sewage sludge and the use of static pile composting as a back up. This application proposes processing sludge using alkaline treatment (AT) as an alternative to composting. Specific proprietary or non-proprietary AT processes may be utilized.

This application does not propose to modify the present composting authorizations. The AT process authorization is not in addition to the allowable composting tonnage, but is an alternative that could be used instead of composting, as conditions dictate.

The CCCF will have two independent systems that could be used for combining and mixing the required materials prior to placement in heat pulse bunkers. One system will utilize a portable (Cemen-tech NSP-80), or other suitable unit, sludge feeder/mixer loaded with sludge by front-end loader as shown in Figure 2. The other system will utilize the facility's existing fixed sludge feed bins and pug mill type mixers as shown in Figure 3.

In 2005, the City of Plattsburgh produced approximately 10,500 tons of biosolids for a daily average of 29 wet tons. To provide room for increased production, this modification request is for an average of 40 wtpd (14,600 tpy) with up to 99 wtpd allowed with prior DEC approval, if sufficient market is demonstrated.

BIOSOLIDS SOURCES

Sources of biosolids will be the City of Plattsburgh WPCP, Town of Peru, and any other approved Clinton County or other municipality. City and Peru production was almost 11,000 tons in 2005. The City has an EPA approved Industrial Pretreatment Program. Analytical data is attached in Appendix A. Paper sludges may also be used with prior DEC approval through a separate permit modification request.

INGREDIENTS

It is anticipated that fly ash, lime (as CaO), and limekiln dust (LKD) will be used. Cement kiln dust (CKD) and other alkaline materials may be used also. Ingredient characteristics will meet state and federal criteria. Analytical data for the actual ingredients will be provided when the specific sources are determined. The ingredients used historically have been compatible with this technology. A memo outlining potential admixture sources and available lab data is provided in Appendix H.

In the event that market demand exceeds production, the City may accept merchant biosolids on a regular or intermittent basis, with prior DEC approval.

PROCESSING TIME DURATIONS

It is anticipated that biosolids will be received by dump trailer and deposited in the tipping area in the curing and screening building or in the existing bins east of the administration building depending on the system being used. Biosolids deliveries will be coordinated to ensure processing as soon as possible and to minimize odors. After mixing, the material will be placed in one of the bunkers in the curing and screening building for at least 72 hours. After meeting the PFPR, VAR and analytical requirements described elsewhere in this report and the O&M Manual, the material will be available for release as a product. There is sufficient room for bunker storage of 73 days worth of product at 40 wtpd and 30 days of bunker storage at 99 wtpd. There are nine bunkers that are 30' by 52' by 12' high. It is anticipated that a little over an hour will be needed to process 40 wt and 2.5 hours for 99 wt.

Pathogen Reduction and Vector Attraction Reduction by Alkaline Treatment

The system will meet EPA Class A PFRP requirements by following and meeting requirements of Alternative 2 of EPA 503.

The systems will be set up to utilize fine alkaline materials (cement kiln dust, lime kiln dust, quicklime fines, combination ash, pulverized lime, or hydrated lime), which will be uniformly mixed by mechanical mixers into dewatered sludge to raise the pH to > 12 for $\geq$ 72 hours. The resulting reactions will create achieved temperatures of $\geq$ 52 degrees C (126 degrees F) throughout the sludge for $\geq$ 12 hours. The stabilized sludge is then air dried (while pH > 12 for $\geq$ 3 days) to $\geq$ 50% solids.

These approaches will simultaneously meet the Vector Attraction Reduction (VAR) requirements, using the methodology described in 40 CFR 503.33(b)(6),:

> The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

These approaches will also comply with DEC Part 360 – 5.5(b) (1)(iii) for pathogen reduction and DEC Part 360 – 5.5(b) (2) (vi) for vector attraction reduction.

Alkaline Treatment System Equipment – Location and Feed Rates

The portable AT system equipment is shown in Appendix B. Equipment for accomplishing PFRP and VAR includes chemical feeders and a sludge feeder/mixer (Cemen Tech NSP-80). Specifications for the NSP-80 unit and accompanying feeder equipment are provided in Appendix B. In addition, a moveable "soil shredder" will be included for modifying physical properties of the mixtures, if necessary. However, this device is not required for meeting PFRP or VAR. Information on this shredder is provided in Appendix C. The feeders use screw augers to move material. Feed rates of the equipment as reported by the manufacturer are listed in Table 1. The storage volumes and feed rates may be adjusted, as necessary.

TABLE 1 AT PROCESS CHEMICAL VOLUMETRIC FEED RATES

FEEDER	STORAGE VOLUME, Cf	MINIMUM FEED RATE, cu ft/hr	AVERAGE FEED RATE cu ft/hr	MAXIMUM FEED RATE cu ft/hr
Biosolids Feed	N/A	400	1200	2000
Lime Feeder	1400	40	120	200
Alkaline Admixture Feeders 1 & 2	1400	212	636	1061

As shown in Figure 2, the site can accommodate placement of the feed and other equipment for the portable AT process.

A variety of alkaline admixture combinations may be used to meet PFRP and VAR requirements by mixing with biosolids. Mixing is accomplished using the Cemen Tech NSP-80 unit. The unit has a biosolids hopper feed volume of 250 cu ft., which will be kept filled with front-end loaders. Biosolids are mixed with admixtures in the NSP-80 unit using a cement-mixer type of auger with blades rotating at 350 rpm.

It is currently planned that fly ash, lime (as CaO), and limekiln dust (LKD) will be used. Materials for this project have been tested with nominal bulk densities as follows: fly ash, 29 lb/cu ft and LKD, 68.6-lb/cu ft (average of three determinations). A nominal value of bulk density of CaO is 65-lb/cu ft. The nominal value of the bulk density of biosolids at 20% solids is taken to be 65-lb/cu ft (Metcalf and Eddy, 1991). Using these values and the feed rates above results in the feed rate ranges shown in Table 2.

Table 2 Mass Feed Rate Ranges of Biosolids and Admixtures:

CONSTITUTENT FEED	MINIMUM FEED Rate, lb/hr	MAXIMUM FEED Rate, lb/hr
Biosolids	26,000	130,000
Lime	2,600	13,000
LKD	13,780	69,000
Fly Ash	6,100	30,800

Preliminary testing on a representative biosolids sample led to the following suggested preliminary mixture: 25% fly ash, 7% CaO, and 30% LKD (where percentages are on a biosolids wet weight basis). Biosolids at 20% fed at an average feed rate of 1200 x 65 = 78,000 lb/hr corresponds to a dry solids fed rate of approximately 0.2 x 78,000 = 15,600 dry lb/hr, or ash feed rate – 0.25 x 78,000 = 19,500 lb/hr, lime feed rate = 0.07 x 78,000 = 5,460 lb/hr; LKD feed rate = 0.30 x 78,000 = 23,400 lb/hr. These feed rates are all readily accomplished using the feeders described above. Note that with a biosolids feed rate of 78,000 wet lb/hr, the system can process 40 wet tons of biosolids feed in a little over an hour. 99 wet tons can be processed in about 2.5 hours.

A process flow chart is shown in Figure 4.

ALTERNATIVE MIXING

As an alternative to using the NSP-80 with the sludge being fed with loaders, the existing fixed facility sludge feed bins and pug mill type mixers, generally shown in Figure 3, for feeding and mixing the sludge and AA. Admixture silos similar to the portable system might also be used. The pug mill mixers discharge onto a conveyor, which will transport the material for curing building for placement into the heat pulse bunkers. The feed and mix rates for this system are expected to be similar to the NSP-80. Appendix D has as summary of the material handling capacities of the associated fixed equipment.

Admixture Addition and PFRP and VAR

The lime dosage noted above, 7% dose of CaO on a wet weight basis, is 5460/15,600 = 35% on a dry weight basis. On a mass equivalent basis, this dose of CaO is equivalent to a $Ca(OH)_2$ dose of 35 x 1.32 = 46%. This dose is well above the 25-40% $Ca(OH)_2$ dose on a dry weight basis sufficient to maintain pH > 12 for seven days, as reported by WEF (1998). Addition of LKD ensures that the final product is well above the required pH for sufficient time.

The percent solids of the resulting mixture can be predicted, although complex chemical reactions are involved. Various precipitates (such as calcium hydroxide and calcium sulfate) will be formed. It can be conservatively assumed for estimating purposes that the fly ash and LKD are not solubilized. (This is not strictly true: fly ash participates in some pozzolonic reactions, and LKD has a lime content that will in large part result in calcium hydroxide precipitate.) If the lime itself is assumed to be converted to calcium hydroxide precipitate,

then the percent solids of the final mixture will be [15,600+ 19,500 + (1.32 x 5,460) + 23,400] / [78,000 + 19,500 + (1.32 x 5460) + 23,400] = ***51%***, which is already above the 50% solids requirement noted above. With air-drying and release of water vapor at elevated temperatures created by exothermic reactions, the resulting mixture will clearly be above the required total solids value needed to meet PFRP.

TREATMENT AND STORAGE AREAS

The primary treatment and storage area for the process is shown in Figure 2. This indoor area is part of the curing building. Following mixing in the NSP-80 system, the system routes the resulting mixtures to a pile which can be placed anywhere along the arc shown. Following or during treatment, the piles can be moved as needed to make room for the next day's treatment. If the alternative pug mills are utilized, the discharge will be in the NW bunker as shown on Figure 2.

As noted above, the mixture must be held at greater than 52 deg. C for at least 12 hours; and a drying period of 72 hours is also required. After this period, the product can be removed from the site. All materials and product will be stored inside during processing, curing and drying. The current plan is to limit production to what can be stored inside.

Previous operating experience shows that about 2.1 cy of product will be created from one wet ton of biosolids. Figure 2 shows there is 14,000 s.f. of storage bunker space. Assuming a 12' pile height, 14,000 s.f. x 12' = 168,240 cf. Divided by 27 sf/cy gives 6,240 cy of storage volume available. At 40 wtpd, 40 wtpd x 2.1 cy/wt = 84 cy of product. 6,240 cy divided by 84 cy/day product gives 74 days of inside storage. Using the same procedure, 99 wtpd sludge could be stored inside for 30 days. This is important because the computer odor models performed by Charlie Alix show that the odor potential of the stored product significantly decreases after 30 days. Thus, space is more than adequate for the AT process.

Monitoring Program for Incoming Biosolids, Amendments, Process Control and Product Quality

The monitoring program for incoming biosolids for the AT system will not be significantly different from current requirements met for the composting operations. The daily operations log is included in Appendix E. Testing for all heavy metals and other constituents required by USEPA and NY regulations, including annual reporting requirements are described in more detail in the Operating and Maintenance Manual.

Sampling and testing of the biosolids will be performed to meet the applicable requirements of 6 NYCRR 360-5.5(e), and CFR 503. As required by 360.5.5(e)(9), annual reports will be submitted to the NYSDEC by March 1 of each year, with samples taken and analyzed for reporting constituents from Table 1 of Section 360-5.10 at the frequencies noted in the Table 6 of Section 360-5.10. Any non-processible material that is encountered will be separated and disposed of at a NYSDEC disposal facility.

Monitoring of amendments for heavy metals is to be accomplished using a QA/QC program that includes review of previous testing performed by amendment suppliers. If an amendment supplier has a significant change in fuel source, a boiler or kiln shutdown, or other event that could change amendment characteristics, new testing and new analytical history for the

amendment will be established. Testing of final product will of course be the final evaluation step; testing will be in accordance with Table 8 and Table 9 of Section 360-5.10. Product not meeting all regulatory requirements will not be distributed and will be reprocessed or disposed of at a regulated landfill as necessary.

Process control will be accomplished using temperature probes, and by monitoring pH and percent solids values. Forms will be used for tracking these operational requirements, as documented in the Operations and Maintenance Manual. Briefly, each batch will be assigned a unique identification. PH values will be measured on a composite consisting of 5 grab samples taken from various points in the pile immediately after mixing. Temperatures will be monitored using a temperature probe and recorded throughout the 72 hours after mixing. At that point, five grab samples will be composited as above for pH and solids determinations. Daily composites will be combined at frequencies required by Part 360 and EPA 503 for metals and other determinations noted in these regulations. Pathogen testing for fecal coliform or Salmonella will be performed as for the current composting operations prior to product leaving the facility.

Batches not meeting the temperature requirements may be reprocessed as necessary.

Batches not meeting the pathogen reduction requirement must be reprocessed and retested for fecal coliform or Salmonella. Otherwise, it will not be distributed for beneficial reuse. Samples not meeting the metals requirements will be disposed of at a regulated landfill as necessary.

Alkaline Admixtures will be tested as described above.

AIR EMISSION AND COLLECTION

If necessary during material processing and/or curing, air emission and collection equipment may be used. The equipment available for the portable equipment consists of a 440,000 cfm dilution and dispersion fan and a 110' high, 14' diameter stack. The permanent equipment collection system is shown on drawing H-11 (attached in Appendix I); the sequence of air flow is SF2 to SCF1/2 through the three stage chemical scrubber and through the dilution and dispersion fan and stack.

ODOR

Odor control will be accomplished by a number of means. The high pH of the process eliminates release of hydrogen sulfide by maintaining sulfide species in ionic form. In addition, high pH values stop biological action, such that odors production by biological action ceases. Addition of fly ash also will help eliminate odors due to the high surface area and carbonaceous material in fly ash.

General Practices will include:

- Tipping hours that ensure prompt processing and clean up of delivered biosolids.
- Processing biosolids on a schedule that ensures the material is as fresh as possible.
- Ensuring that sufficient processing ingredients are available.
- Using ash that has sufficient LOI to control odor.

- Limiting production to what can be stored inside.
- Using appropriate truck routes.
- Processing sludges that are compatible with alkaline technology.
- Coordination of material moving activities with climatic conditions and times that minimize the potential for adverse situations.

Contact names and phone numbers will be provided for callers to advise of odor situations. In the event of a complaint, the attached form will be used. The call recipient will obtain the information in Appendix F and then determine the necessary next steps. A wind rose for the Plattsburgh area is included as Figure 6.

CONTINGENCY PLAN

Since the plant will have two separate and distinct systems for processing, in the event of equipment breakdown, the other system can be used. If the entire plant is out of service, or at the discretion of the City, biosolids may be disposed at other approved facilities including Franklin County landfill and several Canadian sites. Additionally, if unacceptable waste is delivered to the facility it will be properly separated and disposed of at an approved facility.

No noise issues are anticipated. Vectors will be controlled by prompt processing of biosolids.

Contact names and phone numbers will be provided to the public to register complaints or provide other information.

CCCF has a SPCC Plan to address potential petroleum spills at the site.

UNACCEPTABLE WASTE

The City will only accept biosolids from pre-approved sources. If QA/QC monitoring or other means determines that some waste is unacceptable, the material will be handled in accordance with applicable criteria and disposed of at an approved facility.

SURFACE WATER RUNOFF

Currently, outdoor storage is not anticipated. Production will be limited to the volume that can be stored inside. However, in the future if outside storage is utilized, runoff will be collected and discharged through the site pump station to a POTW as shown in Figure 5 or to an on-site detention basin that is regulated by a SPDES permit.

FACILITY OPERATION

Under present circumstances, it is anticipated that the facility will be open for deliveries to and from the site (of biosolids, amendments or finished product) Monday-Friday, between 8 AM and 4 PM. This may vary depending on sludge load and dewatering needs. Processing of material at the facility could occur 7 days per week, at any time during a 24 hour day.. Depending on actual biosolids production and operating conditions, it is possible that biosolids could be processed every day at durations necessary to finish. In the event that the City requests and DEC approves processing up to 99 wtpd, these frequencies and durations could change. Trucks from the City WPCP will use the route prescribed by the City, entering

onto Reeves Lane from Rugar St. and the facility. At 40 wtpd, two biosolids dump trailers, one alkaline admixture tanker, and two product dump trailers would be expected for a total of five trips on average. Biosolids will be discharged to the tipping floor in the CSB or into the sludge bins, depending on which mixer is being used.

PRODUCT MARKETING

A marketing and distribution plan is attached as Appendix G. The City has performed a survey of product users and has demonstrated sufficient demand for the product generated. If catastrophic marketing conditions occur, there is significant storage area available. However, prior to deleterious product build up, it is likely that the City would cease on site operations and utilize alternate disposal methods.

The product is to meet all New York State Part 360 standards in addition to the EPA 503 standards.

FACILITY PERSONNEL

Environmental Manager – Jonathan Ruff, P.E.
Grade 4A WPCP Chief Plant Operator – David Powell
CCCF Plant Operator – To be named later.

OPERATION AND MAINTANANCE MANUAL

An O&M manual for the operation will be provided separately.

REFERENCES:

Metcalf and Eddy, Wastewater Engineering, McGraw-Hill, New York (1991).

US Environmental Protection Agency (EPA), "Control of Pathogens and Vector Attraction in Sewage Sludge (Including Domestic Septage) Under 40 CFR Part 503, "EPA/625/R-92-0 13, October 1999.

Water Environment Federation (WEF), Design of Municipal Wastewater Treatment Plants, WEF Manual Of Practice No. 8, 4th Edition, Vol. III (1998).

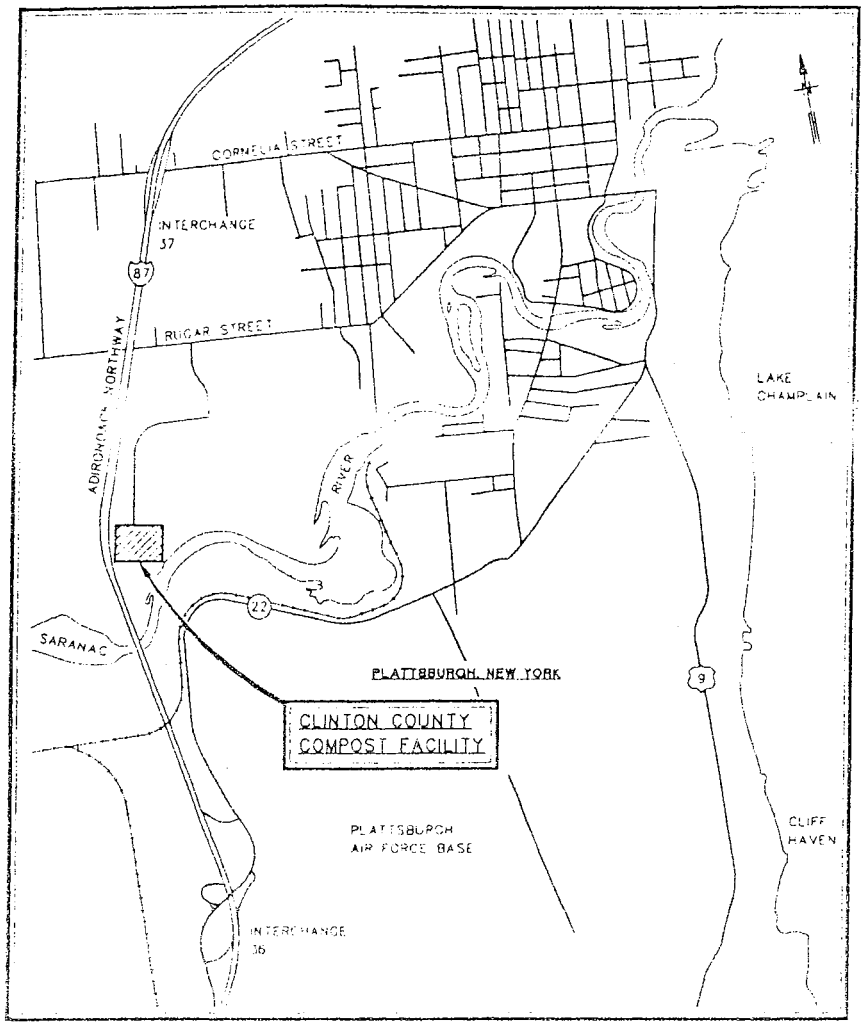
Tetra-Tech Report Dated September 2001, January 2002, June 2002, December 2003, and April 2004.

WCE Marketing Plan

N-Viro Website and technical information

FIGURES

FIGURE 1



LOCATION MAP

1 MILES 1/2 MILE 0 1 MILES

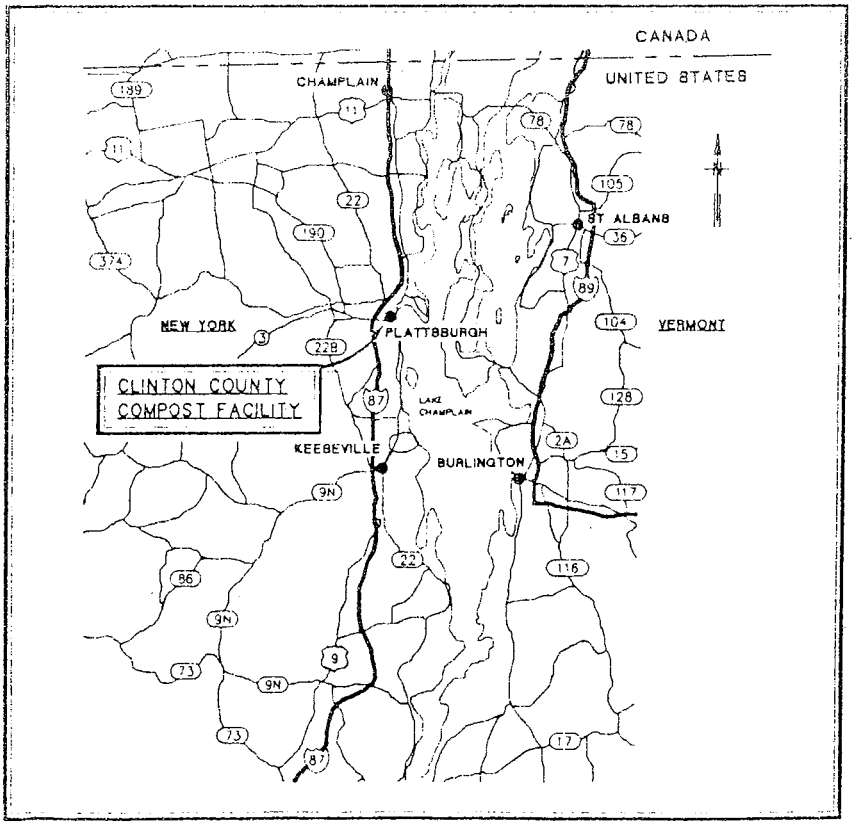
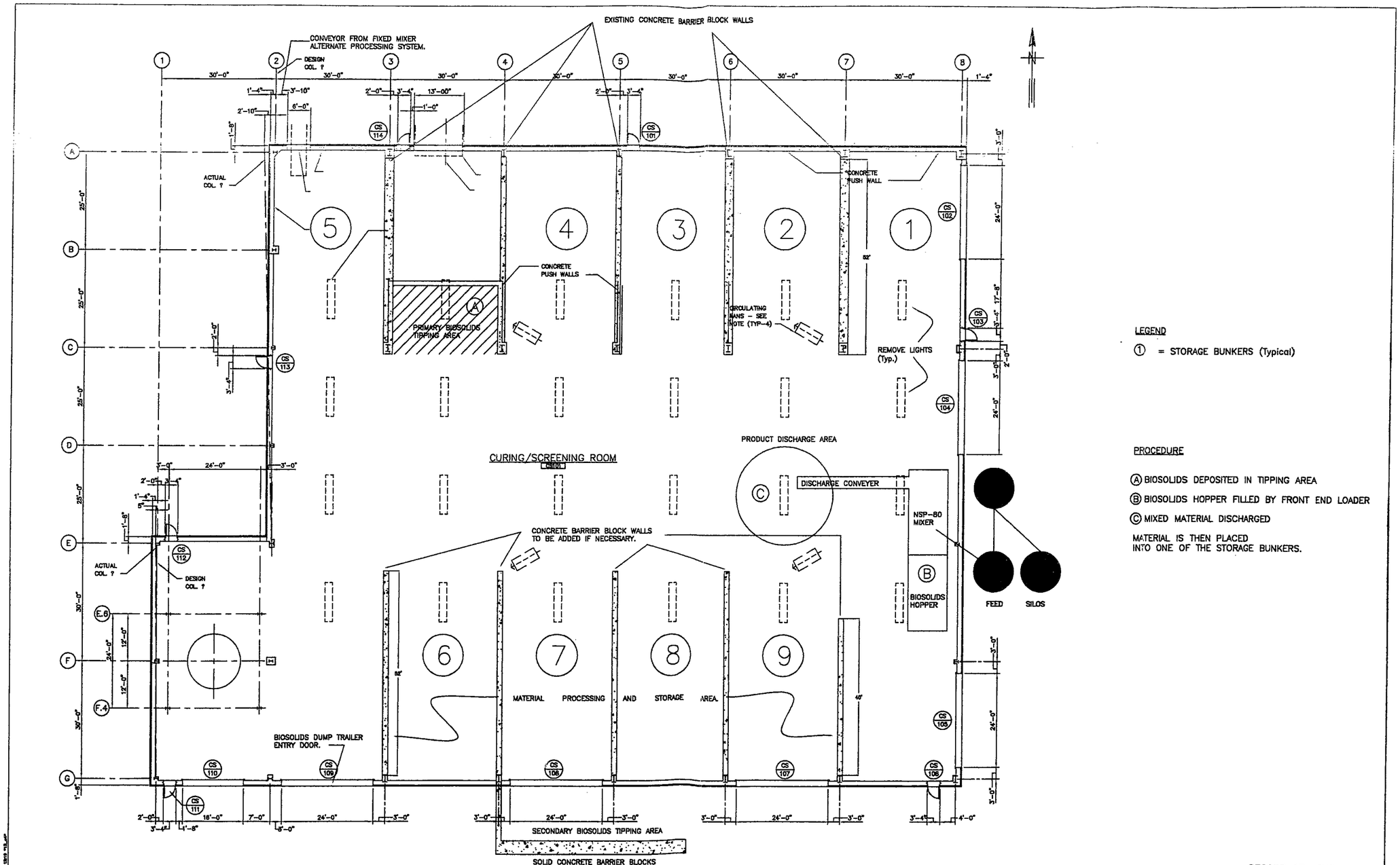


FIGURE 2



PLAN

LEGEND

① = STORAGE BUNKERS (Typical)

PROCEDURE

Ⓐ BIOSOLIDS DEPOSITED IN TIPPING AREA

Ⓑ BIOSOLIDS HOPPER FILLED BY FRONT END LOADER

Ⓒ MIXED MATERIAL DISCHARGED

MATERIAL IS THEN PLACED INTO ONE OF THE STORAGE BUNKERS.

RECORD DRAWING

THIS RECORD IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

CITY OF PLATTSBURGH ENVIRONMENTAL SERVICES DEPARTMENT	DESIGNED / DRAWN / CHECKED	APPROVED	NO.	DATE	APPD	REVISION	SCALE IS NOT EXACT 8 0 8 16 24 FT 3/32"=1'-0"

CLINTON COUNTY COMPOST FACILITY
CLINTON COUNTY, NEW YORK

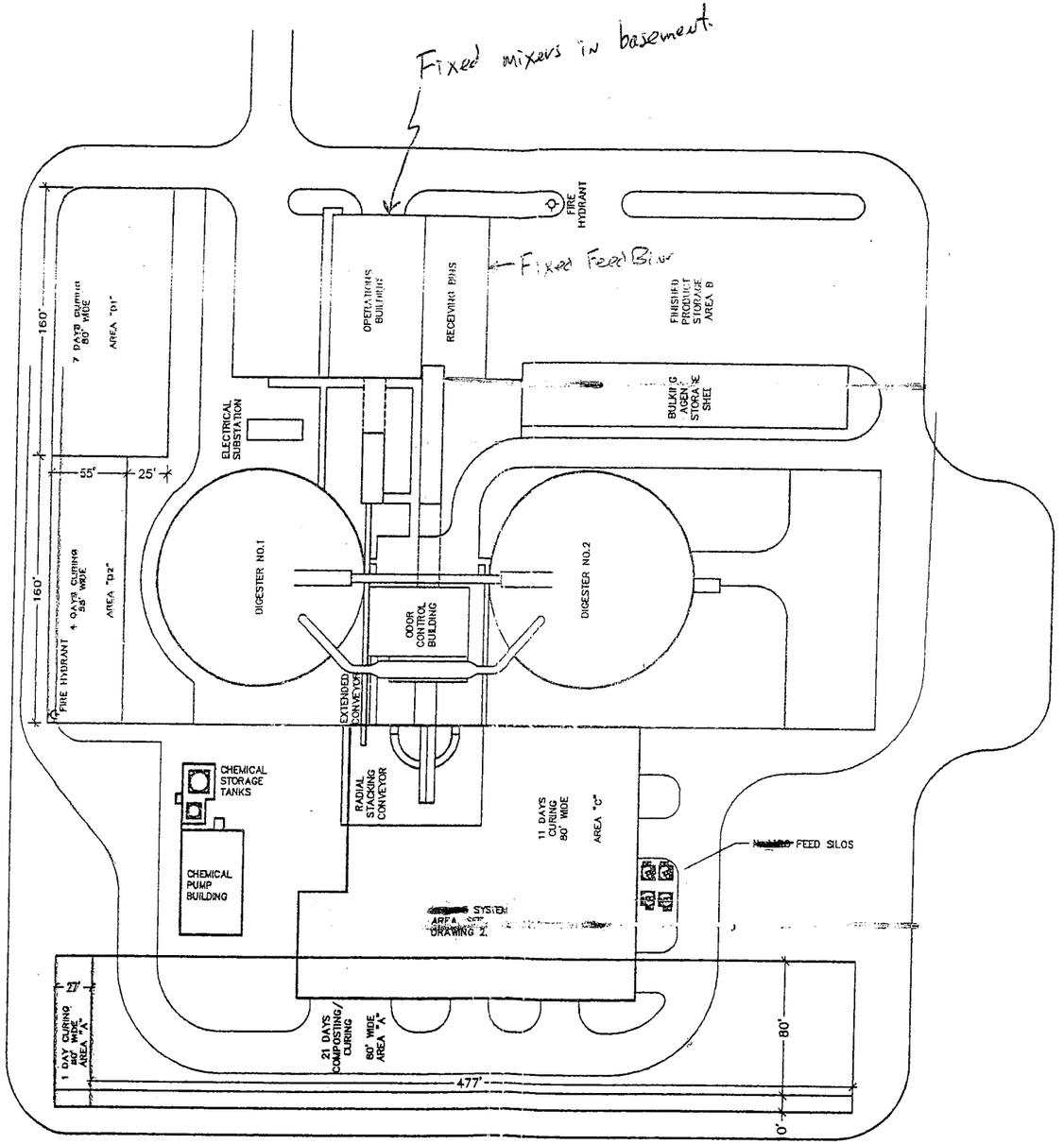
ALKALINE TREATMENT SYSTEM

1. PORTABLE MIXING SYSTEM
2. MATERIAL PROCESSING AND STORAGE AREA

PROJ NO. PROJ | DWG | SHEET SHEET OF OF | DATE DATE REV REV

4/4/2006 9:45:44 AM

FIGURE 3



PRELIMINARY DRAWINGS
DO NOT USE FOR CONSTRUCTION

	DESIGNED: BRB DRAWN: BRB CHECKED: BRB	APPROVED	NO. DATE APPD REVISION	SCALE 40 0 40 80 120 FT 1" = 40'	CLINTON COUNTY, NEW YORK CLINTON COUNTY COMPOST FACILITY SYSTEM MODIFICATIONS	CURING/SCREENING BUILDING SITE PLAN	PROJ NO. DWG 1 SHEET 1 OF 2 DATE Sept. 2001 REV. 1

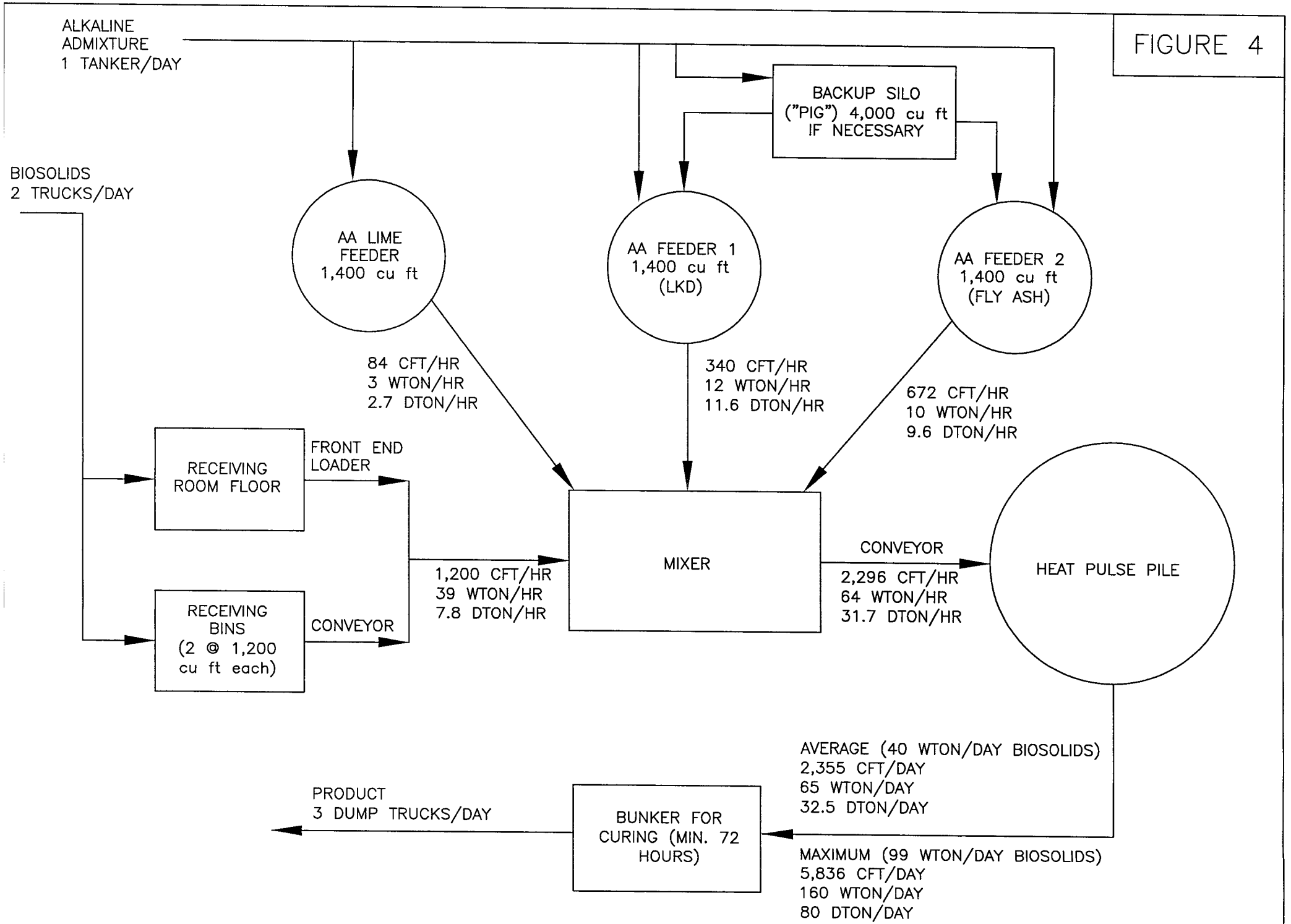
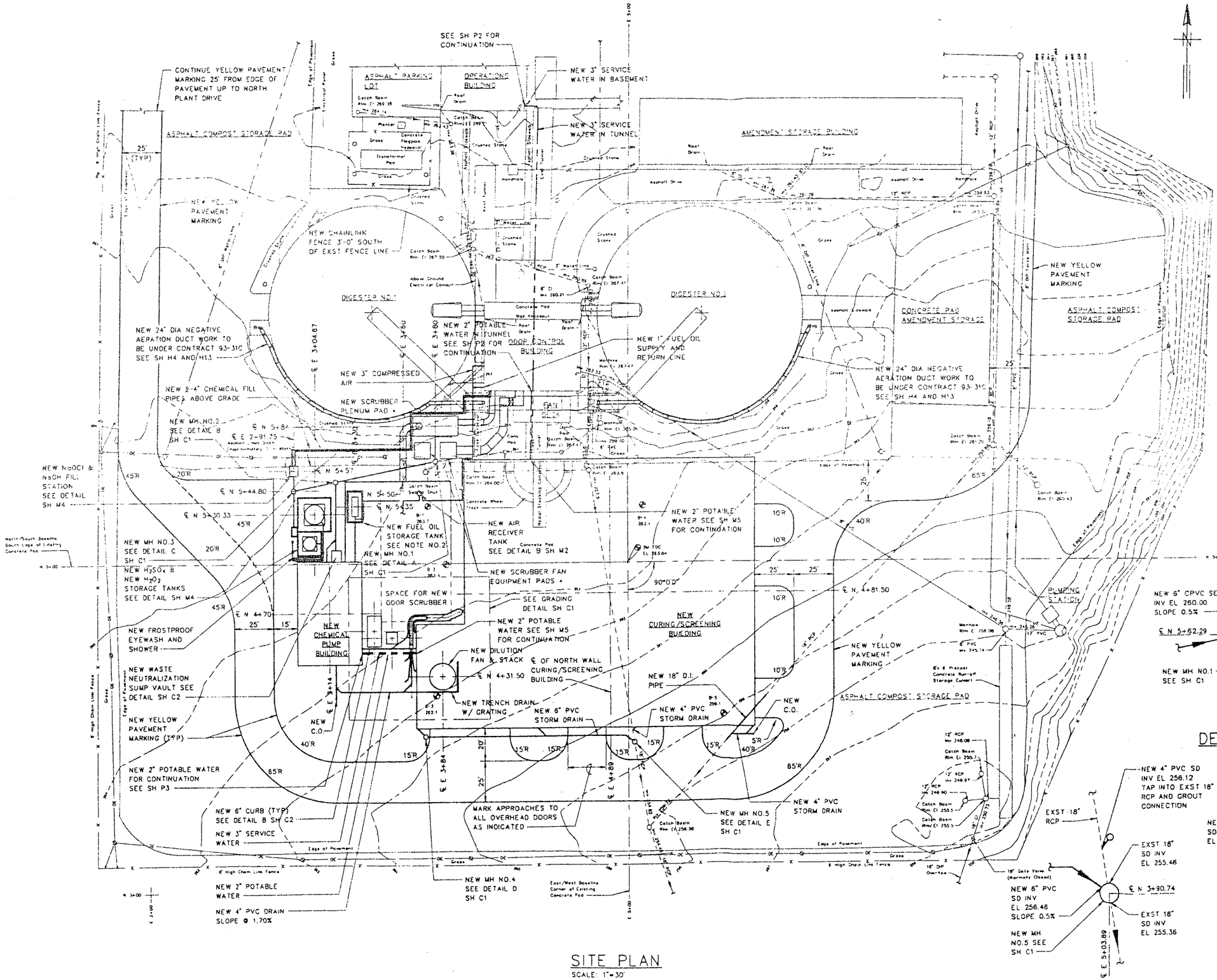


FIGURE 4 PROCESS FLOW CHART FOR CLINTON COUNTY BIOSOLIDS PROCESSING FACILITY

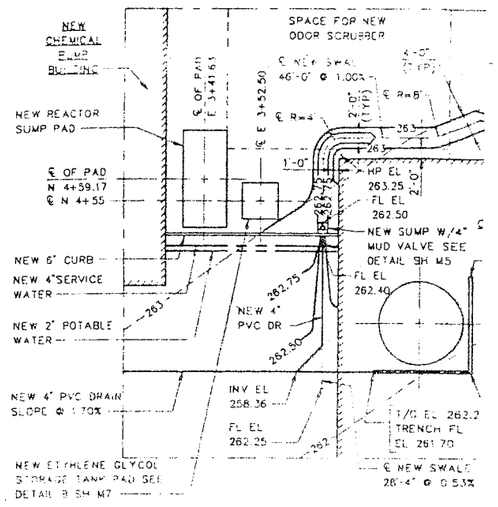
FIGURE 5

NOTES:

1. SEE SITE PLAN DEMOLITION, TYPICAL PRECAST CONCR DETAIL AND WASTE NEUTRALIZATION SUMP VAULT PL.
2. SEE FUEL OIL STORAGE TANK (DST-1) PIPING DIAGRA
3. SEE SITE PLAN DRAINAGE AND YARD PIPING SH M5.



SITE PLAN



GRADING DETAIL

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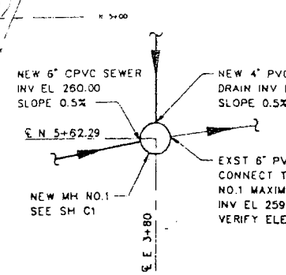
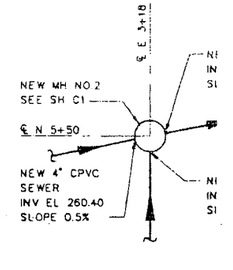
(FOR LOCATION SEE SH C1)



DETAIL A

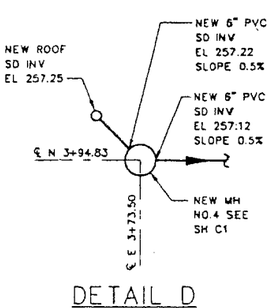
NTS



DETAIL B

NTS

DETAIL E



DETAIL D

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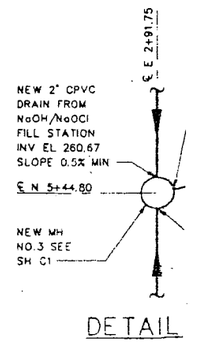
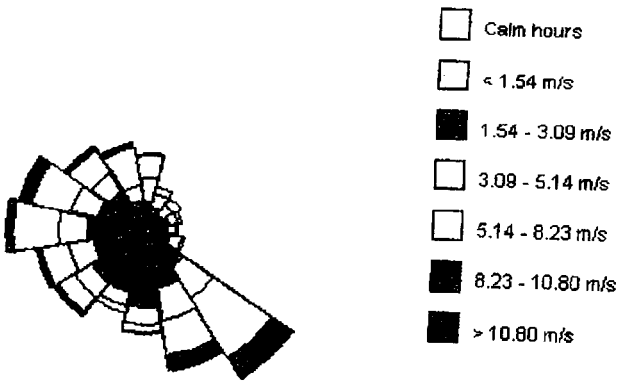


DETAIL

NTS

FIGURE 6

1994 Wind Rose for the Plattsburgh Area



Appendix A – Biosolids Analytical Data

City of Plattsburgh, NY WPCP Sludge Analyses Summary | SECTION 4 | UNITS=MG/KG DRY WEIGHT

KEY: #S=5 IN WEEKLY SLOT MEANS 5C; #S IN AVE IS SAMPLES PER QUARTER

%S=PERCENT SOLIDS, %VS= PERCENT VOLATILE SOLIDS #S=AS ABOVE-EXCEPT PCB

%SC=% SOLIDS COMMERCIAL LAB

TKN&NH3 REPORTED AS N IN PPM

AV=AVERAGE

#	PERIOD SUN	-	SAT	%S	VS %	TKN MG/KG	NH3N MG/KG	CR		SLUDGE CD		SLUDGE CU	SLUDGE NI	SLUDGE PB	SLUDGE ZN		SLUDGE HG		SLUDGE AS		SLUDGE SE		SLUDGE MO	SLUDGE %SC	SLUDGE #S
1	1/1/2006	-	1/7/2006	21	81	38600	1645	18.1	<	1.17		211	7.76	19.0	195		1.74	<	1.2		1.5		3.68	21	5
2	1/8/2006	-	1/14/2006																						
3	1/15/2006	-	1/21/2006																						
4	1/22/2006	-	1/28/2006																						
5	1/29/2006	-	2/4/2006																						
6	2/5/2006	-	2/11/2006	22	81	34500	1743	19.5	<	2		257	20	22.6	291	<	0.19		2.3		2.1	<	10	22	5
7	2/12/2006	-	2/18/2006																						
8	2/19/2006	-	2/25/2006																						
9	2/26/2006	-	3/4/2006																						
10	3/5/2006	-	3/11/2006	21	83	39800	1133	27.2	<	2		356	20	20.0	414		1.56	<	1.5		1.7	<	10	20	5
11	3/12/2006	-	3/18/2006																						
12	3/19/2006	-	3/25/2006																						
13	3/26/2006	-	4/1/2006																						
14	4/2/2006	-	4/8/2006	20	76	40800	1505	28.9	<	2		267	20	31.0	300		1.11		2.2		2.3	<	10	20	5
15	4/9/2006	-	4/15/2006																						
16	4/16/2006	-	4/22/2006																						
17	4/23/2006	-	4/29/2006																						
18	4/30/2006	-	5/6/2006																						
19	5/7/2006	-	5/13/2006	19	80	41200	1113	22.0	<	2		369	20	19.2	386		0.61	<	1.5		1.6		6.01		5
20	5/14/2006	-	5/20/2006																						
21	5/21/2006	-	5/27/2006																						
22	5/28/2006	-	6/3/2006																						
23	6/4/2006	-	6/10/2006	18	72	48100	1609	29.2	<	2		392	20	69.5	441		0.75		2.1		1.6		8.22	18	5
24	6/11/2006	-	6/17/2006																						
25	6/18/2006	-	6/24/2006																						
26	6/25/2006	-	7/1/2006																						
27	7/2/2006	-	7/8/2006																						
28	7/9/2006	-	7/15/2006	20	79	39300	1430	29.5	<	2		384	20	20.0	456		0.98	<	1.5		1.9		5.72	20	5
29	7/16/2006	-	7/22/2006																						
30	7/23/2006	-	7/29/2006																						
31	7/30/2006	-	8/5/2006																						
32	8/6/2006	-	8/12/2006	21	82	42000	1442	23.4	<	2.35		480	23.5	23.5	429		0.79		2.6	<	1.2	<	11.7	21	5
33	8/13/2006	-	8/19/2006																						
34	8/20/2006	-	8/26/2006																						
35	8/27/2006	-	9/2/2006																						
36	9/3/2006	-	9/9/2006	17	82	47000	1933	22.5		1.23		417	13.2	12.1	470		0.92		1.9		2.2		7	17	5
37	9/10/2006	-	9/16/2006																						
38	9/17/2006	-	9/23/2006																						
39	9/24/2006	-	9/30/2006																						
40	10/1/2006	-	10/7/2006	18	84	50300	1217	19.5	<	2		313	20	20.0	370		0.85		1.9		2.3	<	10	17	5
41	10/8/2006	-	10/14/2006																						
42	10/15/2006	-	10/21/2006																						
43	10/22/2006	-	10/28/2006																						
44	10/29/2006	-	11/4/2006																						
45	11/5/2006	-	11/11/2006	18	84	38800	1692	17.0	<	1.46		477	9.51	6.0	369		0.91		1.8		2.6		9.45	17	5
46	11/12/2006	-	11/18/2006																						
47	11/19/2006	-	11/25/2006																						
48	11/26/2006	-	12/2/2006																						
49	12/3/2006	-	12/9/2006	20	79	40600	19700	23.5	<	1.23		299	12.5	3.5	345		1.13	<	1.2	<	1.2		12.5	20	5
50	12/10/2006	-	12/16/2006																						
51	12/17/2006	-	12/23/2006																						
52	12/24/2006	-	12/30/2006																						
	1Q AVES			21	82	37633	1507	21.6	<	1.72		275	15.9	20.5	300		1.16	<	1.7	<	1.8	<	7.9	21	3
	2Q AVES			19	76	43367	1409	26.7		2.00		343	20.0	39.9	376		0.82	<	2.0	<	1.8	<	8.1	19	3
	3Q AVES			19	81	42767	1602	25.1		1.86		427	18.9	18.5	452		0.90	<	2.0	<	1.7	<	8.1	19	3
	4Q AVES			19	82	43233	7536	20.0		1.56		363	14.0	9.8	361		0.96		1.6		2.0		10.7	18	3

City of Plattsburgh, NY WPCP Sludge Analyses Summary — SECTION 4 — UNITS=MG/KG DRY WEIGHT

KEY: #S=5 IN WEEKLY SLOT MEANS 5C; #S IN AVE IS SAMPLES PER QUARTER

%S=PERCENT SOLIDS, %VS= PERCENT VOLATILE SOLIDS #S=AS ABOVE-EXCEPT PCB

%SC=% SOLIDS COMMERCIAL LAB — TKN&NH3 REPORTED AS N IN PPM — AV=AVERAGE

#	PERIOD SUN		SAT	SLUDGE P	SLUDGE K	SLUDGE PH		SLUDGE NO2		SLUDGE NO3		SLUDGE TOTAL PCB'S								
1	1/1/2006	-	1/7/2006	9100	1620	6.6	<	17.9	<	17.9	<	0.1								
2	1/8/2006	-	1/14/2006																	
3	1/15/2006	-	1/21/2006																	
4	1/22/2006	-	1/28/2006																	
5	1/29/2006	-	2/4/2006																	
6	2/5/2006	-	2/11/2006	10800	1100	6.8	<	17.1	<	17.1	<	0.1								
7	2/12/2006	-	2/18/2006																	
8	2/19/2006	-	2/25/2006																	
9	2/26/2006	-	3/4/2006																	
10	3/5/2006	-	3/11/2006	11900	1170	6.4	<	17.8	<	17.8	<	0.1								
11	3/12/2006	-	3/18/2006																	
12	3/19/2006	-	3/25/2006																	
13	3/26/2006	-	4/1/2006																	
14	4/2/2006	-	4/8/2006	14600	1650	6.6	<	18.8	<	18.8	<	0.1								
15	4/9/2006	-	4/15/2006																	
16	4/16/2006	-	4/22/2006																	
17	4/23/2006	-	4/29/2006																	
18	4/30/2006	-	5/6/2006																	
19	5/7/2006	-	5/13/2006	12600	1280	6.1	<	19.5	<	19.5	<	0.1								
20	5/14/2006	-	5/20/2006																	
21	5/21/2006	-	5/27/2006																	
22	5/28/2006	-	6/3/2006																	
23	6/4/2006	-	6/10/2006	8500	1520	6.6	<	22.1		35.3	<	0.1								
24	6/11/2006	-	6/17/2006																	
25	6/18/2006	-	6/24/2006																	
26	6/25/2006	-	7/1/2006																	
27	7/2/2006	-	7/8/2006																	
28	7/9/2006	-	7/15/2006	14500	1460	6.7	<	18.9		29.7	<	0.1								
29	7/16/2006	-	7/22/2006																	
30	7/23/2006	-	7/29/2006																	
31	7/30/2006	-	8/5/2006																	
32	8/6/2006	-	8/12/2006	11000	1250	6.3		12		21.9	<	1.2								
33	8/13/2006	-	8/19/2006																	
34	8/20/2006	-	8/26/2006																	
35	8/27/2006	-	9/2/2006																	
36	9/3/2006	-	9/9/2006	13200	1230	6.5	<	23.5	<	23.5	<	0.1								
37	9/10/2006	-	9/16/2006																	
38	9/17/2006	-	9/23/2006																	
39	9/24/2006	-	9/30/2006																	
40	10/1/2006	-	10/7/2006	14800	1180	6.1	<	24.6		39.2	<	0.1								
41	10/8/2006	-	10/14/2006																	
42	10/15/2006	-	10/21/2006																	
43	10/22/2006	-	10/28/2006																	
44	10/29/2006	-	11/4/2006																	
45	11/5/2006	-	11/11/2006	10200	1350	6.2	<	20.2	<	20.2	<	0.3								
46	11/12/2006	-	11/18/2006																	
47	11/19/2006	-	11/25/2006																	
48	11/26/2006	-	12/2/2006																	
49	12/3/2006	-	12/9/2006	11700	1890	6.0	<	20.1		37.7	<	0.3								
50	12/10/2006	-	12/16/2006																	
51	12/17/2006	-	12/23/2006																	
52	12/24/2006	-	12/30/2006																	
	1Q AVES			10600	1297	6.6		17.6		17.60	<	0.10	######	######	######	######	<	######	<	######
	2Q AVES			11900	1483	6.4		20.1		24.53	<	0.10	######	######	######	######	<	######	<	######
	3Q AVES			12900	1313	6.5		18.1		25.03	<	0.47	######	######	######	######	<	######	<	######
	4Q AVES			12233	1473	6.1		21.6		32.37	<	0.23	######	######	######	######		######		######

SLUDGE REPORT

City of Plattsburgh, NY WPCP Sludge Analyses Summary | SECTION 4 | UNITS=MG/KG DRY WEIGHT

KEY: #S=5 IN WEEKLY SLOT MEANS 5C; #S IN AVE IS SAMPLES PER QUARTER

%S=PERCENT SOLIDS, %VS= PERCENT VOLATILE SOLIDS #S=AS ABOVE-EXCEPT PCB

%SC=% SOLIDS COMMERCIAL LAB | TKN&NH3 REPORTED AS N IN PPM

AV=AVERAGE

#	PERIOD SUN	-	SAT	%S	VS %	TKN MG/KG	NH3N MG/KG	CR		SLUDGE CD		SLUDGE CU		SLUDGE NI		PB	SLUDGE ZN		SLUDGE HG		SLUDGE AS		SE	MO	SLUDGE %SC	#S
1	12/31/2006	-	1/6/2007																							
2	1/7/2007	-	1/13/2007	20	81	45800	6870	20.0	<	1.26		229		8.98		4.7	253		0.73	<	1.3		1.3	4.7	20	5
3	1/14/2007	-	1/20/2007																							
4	1/21/2007	-	1/27/2007																							
5	1/28/2007	-	2/3/2007																							
6	2/4/2007	-	2/10/2007	19	78	47100	9560	25.0		1.36		278		11.5		7.9	288		1.10		2.1		2.1	6.38	19	5
7	2/11/2007	-	2/17/2007																							
8	2/18/2007	-	2/24/2007																							
9	2/25/2007	-	3/3/2007																							
10	3/4/2007	-	3/10/2007	21	80	36000	6600	25.2	<	0.952		404		11.1	<	9.5	246		0.46		2.1	<	9.5	4.42	21	5
11	3/11/2007	-	3/17/2007																							
12	3/18/2007	-	3/24/2007																							
13	3/25/2007	-	3/31/2007																							
14	4/1/2007	-	4/7/2007																							
15	4/8/2007	-	4/14/2007																							
16	4/15/2007	-	4/21/2007																							
17	4/22/2007	-	4/28/2007																							
18	4/29/2007	-	5/5/2007																							
19	5/6/2007	-	5/12/2007																							
20	5/13/2007	-	5/19/2007																							
21	5/20/2007	-	5/26/2007																							
22	5/27/2007	-	6/2/2007																							
23	6/3/2007	-	6/9/2007																							
24	6/10/2007	-	6/16/2007																							
25	6/17/2007	-	6/23/2007																							
26	6/24/2007	-	6/30/2007																							
27	7/1/2007	-	7/7/2007																							
28	7/8/2007	-	7/14/2007																							
29	7/15/2007	-	7/21/2007																							
30	7/22/2007	-	7/28/2007																							
31	7/29/2007	-	8/4/2007																							
32	8/5/2007	-	8/11/2007																							
33	8/12/2007	-	8/18/2007																							
34	8/19/2007	-	8/25/2007																							
35	8/26/2007	-	9/1/2007																							
36	9/2/2007	-	9/8/2007																							
37	9/9/2007	-	9/15/2007																							
38	9/16/2007	-	9/22/2007																							
39	9/23/2007	-	9/29/2007																							
40	9/30/2007	-	10/6/2007																							
41	10/7/2007	-	10/13/2007																							
42	10/14/2007	-	10/20/2007																							
43	10/21/2007	-	10/27/2007																							
44	10/28/2007	-	11/3/2007																							
45	11/4/2007	-	11/10/2007																							
46	11/11/2007	-	11/17/2007																							
47	11/18/2007	-	11/24/2007																							
48	11/25/2007	-	12/1/2007																							
49	12/2/2007	-	12/8/2007																							
50	12/9/2007	-	12/15/2007																							
51	12/16/2007	-	12/22/2007																							
52	12/23/2007	-	12/29/2007																							
	1Q AVES			20	80	42967	7677	23.4	<	1.19		304	<	10.5		7.4	262		0.76	<	1.8	<	4.3	5.2	20	3
	2Q AVES			###	##	#######	######	######		######		######		######		######	######		######	<	######	<	######	######	######	0
	3Q AVES			###	##	#######	######	######		######		######		######		######	######		######	<	######	<	######	######	######	0
	4Q AVES			###	##	#######	######	######		######		######		######		######	######		######		######		######	######	######	0

City of Plattsburgh, NY WPCP Sludge Analyses Summary — SECTION 4 — UNITS=MG/KG DRY WEIGHT

KEY: #S=5 IN WEEKLY SLOT MEANS 5C; #S IN AVE IS SAMPLES PER QUARTER

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%SC=% SOLIDS COMMERCIAL LAB

TKN&NH3 REPORTED AS N IN PPM

AV=AVERAGE

#	PERIOD SUN	-	SAT	SLUDGE P	SLUDGE K	SLUDGE PH		SLUDGE NO2		SLUDGE NO3		SLUDGE TOTAL PCB'S
1	12/31/2006	-	1/6/2007									
2	1/7/2007	-	1/13/2007	10700	1670	6.3	<	20.8	<	20.8	<	0.6
3	1/14/2007	-	1/20/2007									
4	1/21/2007	-	1/27/2007									
5	1/28/2007	-	2/3/2007									
6	2/4/2007	-	2/10/2007	11200	2310	5.8	<	20.7	<	20.7	<	0.1
7	2/11/2007	-	2/17/2007									
8	2/18/2007	-	2/24/2007									
9	2/25/2007	-	3/3/2007									
10	3/4/2007	-	3/10/2007	10100	1960	6.2	<	19.3		25	<	0.1
11	3/11/2007	-	3/17/2007									
12	3/18/2007	-	3/24/2007									
13	3/25/2007	-	3/31/2007									
14	4/1/2007	-	4/7/2007									
15	4/8/2007	-	4/14/2007									
16	4/15/2007	-	4/21/2007									
17	4/22/2007	-	4/28/2007									
18	4/29/2007	-	5/5/2007									
19	5/6/2007	-	5/12/2007									
20	5/13/2007	-	5/19/2007									
21	5/20/2007	-	5/26/2007									
22	5/27/2007	-	6/2/2007									
23	6/3/2007	-	6/9/2007									
24	6/10/2007	-	6/16/2007									
25	6/17/2007	-	6/23/2007									
26	6/24/2007	-	6/30/2007									
27	7/1/2007	-	7/7/2007									
28	7/8/2007	-	7/14/2007									
29	7/15/2007	-	7/21/2007									
30	7/22/2007	-	7/28/2007									
31	7/29/2007	-	8/4/2007									
32	8/5/2007	-	8/11/2007									
33	8/12/2007	-	8/18/2007									
34	8/19/2007	-	8/25/2007									
35	8/26/2007	-	9/1/2007									
36	9/2/2007	-	9/8/2007									
37	9/9/2007	-	9/15/2007									
38	9/16/2007	-	9/22/2007									
39	9/23/2007	-	9/29/2007									
40	9/30/2007	-	10/6/2007									
41	10/7/2007	-	10/13/2007									
42	10/14/2007	-	10/20/2007									
43	10/21/2007	-	10/27/2007									
44	10/28/2007	-	11/3/2007									
45	11/4/2007	-	11/10/2007									
46	11/11/2007	-	11/17/2007									
47	11/18/2007	-	11/24/2007									
48	11/25/2007	-	12/1/2007									
49	12/2/2007	-	12/8/2007									
50	12/9/2007	-	12/15/2007									
51	12/16/2007	-	12/22/2007									
52	12/23/2007	-	12/29/2007									
	1Q AVES			10667	1980	6.1		20.3		22.17	<	0.27
	2Q AVES			#DIV/0!	#DIV/0!	######		######		######	<	#DIV/0!
	3Q AVES			#DIV/0!	#DIV/0!	######		######		######		#DIV/0!
	4Q AVES			#DIV/0!	#DIV/0!	######		######		######		#DIV/0!

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0526, (800) 842-4667

Laboratory Analysis Report

PLATTSBURGH WPCP, CITY OF
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
ATTN: Mr. Bill Ellsworth

PO#: 581503

PROJECT #: 222661
RECEIVED: 03/14/2007 @ 10:40
REVISED: 3/28/07

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 445620 CLIENT SAMPLE ID:	SLUDGE (3/3-8)			DATE/TIME SAMPLED: 03/09/07 @ 11:00	
ICP/MS					
arsenic	2.13	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
cadmium	<0.952	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
chromium	25.2	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
copper	404	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
lead	<9.52	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
molybdenum	4.42	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
nickel	11.1	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
selenium	<9.52	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
zinc	246	MG/KG DRY WT.	03/19/07	EPA 6020	CRI
Metals Digestion			03/15/07	EPA 3050B	BDR
ICP					
potassium	1960	MG/KG DRY WT.	03/19/07	EPA 6010	CRI
Metals Digestion			03/15/07	EPA 3050B	BDR
MERCURY	0.46	MG/KG DRY WT.	03/22/07	EPA 7471A	CRI
Mercury Prep 7471A		-	03/21/07	EPA 7471A	BDR
PHOSPHORUS, TOTAL	10,100	MG/KG DRY WT.	03/20/07	SM 18 4500 P-F	LBA
Semi-Volatile - PCB'S					
aroclor 1016	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1221	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1232	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1242	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1248	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1254	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
aroclor 1260	<0.1	MG/KG DRY WT.	03/20/07	EPA 8082	KDI
Surrogate (2,4,5,6-tetrachloro-m-xylene): 72% recovery,(decachlorobiphenyl): 85% recovery, Surrogate recovery acceptance limits are 75-125%.					
Solid Ultrasonic Extraction			03/15/07	EPA 3550B	KAL
SOLIDS, TOTAL VOLATILE	80	PERCENT	03/21/07	EPA 160.4	LBA
SOLIDS, TOTAL	21	PERCENT	03/16/07	SM18 2540B	LBA

PLATTSBURGH WPCP, CITY OF
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
ATTN: Mr. Bill Ellsworth

PO#: 581503

222661
RECEIVED: 03/14/2007 @ 10:40
REVISED: 3/28/07

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 445621 CLIENT SAMPLE ID:	SLUDGE (3/3-8)			DATE/TIME SAMPLED: 03/09/07 @ 11:00	
AMMONIA NITROGEN	6600	MG/KG DRY WT.	03/28/07	SM18 4500-NH3-E	LBA
NITRATE	25.0	MG/KG DRY WT.	03/14/07 @ 0944	SM18 4500-NO3-F	LBA
NITRITE	<19.3	MG/KG DRY WT.	03/14/07 @ 0944	SM18 4500-NO3-F	LBA
SOLIDS, TOTAL	22	PERCENT	03/16/07	SM18 2540B	LBA
TOTAL KJELDAHL NITROGEN	36000	MG/KG DRY WT.	03/20/07	SM18 4500-NH3-E	LBA

Sample Receipt Temperature: 3 Degrees C

David R. Hill
Laboratory Manager

03/28/2007
Print Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated. Report relates only to the samples as received by the laboratory and shall not be reproduced except in full, without written approval from Environmental Laboratory Services.

Environmental
LABORATORY SERVICES

2226061

TO: ENVIRONMENTAL LABORATORY SERVICES
7280 CASWELL STREEN, HANCOCK AIR PARK
NORTH SYRACUSE, NY 13212
PHONE 315-458-8033, FAX 315-458-0249

CHAIN OF CUSTODY RECORD

SAMPLER'S NAME>> Joyce Frechette
(PLEASE PRINT)

CLIENT:CITY OF PLATTSBURGH-WPCP
CLIENT CONTACT: BILL ELLSWORTH
PROJECT LOCATION:>> CITY OF PLATTSBUCLIENT PHONE 518-563-7172

Environmental Lab. Services Contact: Anne Lee

PURCHASE ORDER # 581503

TURNAROUND TIME REQUESTED: NORMAL

ELS SMPL #	SAMPLEID	DATESMPL	TIME	MATRIX	TYPE	NOCONT	PRES	DETECT LIM PPB	ANALYSES
445620	SLUDGE(3/3-8)	3/9/07	1100	SOIL	COMP	1	refrig	note1	Tot. AS,CR,CD,CU,K,MO,NI,PB,SE,ZN,MERCURY,TP,total pcb's, %solids, % Vol.Solids
445621	SLUDGE(?/3-8)	3/9/07	1100	SOIL	COMP	1	freeze	Below	NO2,NO3,TKN,Ammonia Nitrogen
				SOIL					

SAMPLED BY:(SIGNATURE) DATE/TIME
>> Joyce Frechette 3/9/07, 1100

RELINQUISHED BY:(SIGNATURE)
Joyce Frechette 3/13/07, 1100

DISPATCHED BY:(SIGNATURE)
Joyce Frechette 3/13/07, 1500

RECEIVED BY:(SIGNATURE) DATE/TIME

RECEIVED BY:(SIGNATURE)

RECEIVED FOR LABORATORY BY:
3/14/07 10:40

PRESERVATIVES
1. HCL 7. H2SO4
2. HNO3 8. FILTERED
3. NAOH 9. N (NOT PRESERVED)
4. NA2S203 10. OTHER
5. ZN ACET 11.R=refrigerated
6. ASCORBIC 12.F=frozen

METHOD OF SHIPMENT: UPS

SAMPLE CONDITION:
1. SAMPLES INTACT? (Y)N
2.CUSTODY SEALS INTACT (Y)N
3. PRESERVED PROPERLY:(Y)N
4. AMBIENT OR CHILLED? 3.2°
5. COC RECEIVED WITH (Y)N SAMPLES?

DATE:>> 3/13/07

DETECTION LIMIT REQUIREMENTS: (IN PPM)

TOT.METAL (PPM)(MG/KG DRY WT)		OTHER ANALYTES	
AS	1.5	PENTACHLOROPHENOL	3.5 MG/KG
CD	2	TOTAL PHENOLICS	1.0 MG/KG
CR	5	NAPTHALENE	0.7MG/KG
CU	25	METHYLENE CHLORIDE	0.2MG/KG
PB	20	TRICHLOROETHYLENE	0.2 MG/KG
HG	0.5	TOLUENE	0.2 MG/KG
NI	20	BIS-2-ETHYL-HEXYL-PHTHALATE	3.0 MG/KG
SE	1	BENZIDINE	3.0 MG/KG
AG	25	CYANIDE	0.5 MG/KG
ZN	20	TKN	5000 MG/KG

MO 10..PCB'S@-33ppb wet weight-Report in dry weight however
Ammonia Nitrogen 100 mg/kg
TP=Total Phosphorus 100 mg/kg

NOTES/COMMENTS:
SEND A COPY OF THIS COC, COMPLETED, BACK TO OUR LAB
NOTE1:BE SURE TO MIX SAMPLES PRIOR TO ANALYSES
TP is an abbreviation for Total Phosphorus
Report percent solids on composite sample

Report all analyses on a dry weight basis

Report name S/C 1/98

COCELS.WDB LOCATION Sludge FREQ. Monthly REVISED-1/12/2007

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0526, (800) 842-4667

Laboratory Analysis Report

PLATTSBURGH WPCP, CITY OF
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
ATTN: Mr. Bill Ellsworth

PO#: 581435

PROJECT #: 220945
RECEIVED: 09/28/2006 @ 09:00

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 436097 CLIENT SAMPLE ID: SLUDGE				DATE/TIME SAMPLED: 09/28/06 @ 09:15	
CYANIDE, TOTAL	1.0	MG/KG DRY WT.	10/09/06	EPA 9010	ELAP#11246
PHENOLICS	21.3	MG/KG DRY WT.	10/10/06	EPA 420.2	CRI
Semi-Volatile - 8270 A/B/N W/ BENZIDINE					
1,2,4-trichlorobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
1,2-dichlorobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
1,2-diphenylhydrazine	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
1,2-Diphenylhydrazine breaks down in the injection port. It is analyzed and reported as Azobenzene.					
1,3-dichlorobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
1,4-dichlorobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4,5-trichlorophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4,6-trichlorophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4-dichlorophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4-dimethylphenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4-dinitrophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,4-dinitrotoluene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2,6-dinitrotoluene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-chloronaphthalene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-chlorophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-methyl-4,6-dinitrophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-methylnaphthalene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-methylphenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-nitroaniline	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
2-nitrophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
3,3-dichlorobenzidine	<22.7	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
3+4-methylphenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
3-nitroaniline	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-bromophenyl phenyl ether	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-chloro-3-methylphenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-chloroaniline	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-chlorophenyl phenyl ether	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-nitroaniline	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
4-nitrophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL

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SAMPLE #: 436097 CLIENT SAMPLE ID:	SLUDGE			DATE/TIME SAMPLED: 09/28/06 @ 09:15	
Semi-Volatile - 8270 A/B/N W/ BENZIDINE					
acenaphthene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
acenaphthylene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
aniline	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
anthracene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzidine	<22.7	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzo(a)anthracene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzo(a)pyrene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzo(b)fluoranthene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzo(g,h,i)perylene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzo(k)fluoranthene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzoic acid	21.7	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
benzyl alcohol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
bis(2-chloroethoxy)methane	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
bis(2-chloroethyl) ether	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
bis(2-chloroisopropyl) ether	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
bis(2-ethylhexyl) phthalate	28.9	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
butyl benzyl phthalate	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
chrysene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
dibenz(a,h)anthracene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
dibenzofuran	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
diethyl phthalate	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
dimethyl phthalate	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
di-n-butyl phthalate	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
di-n-octyl phthalate	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
fluoranthene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
fluorene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
hexachlorobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
hexachlorobutadiene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
hexachlorocyclopentadiene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
hexachloroethane	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
indeno(1,2,3-cd)pyrene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
isophorone	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
naphthalene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
nitrobenzene	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
n-nitrosodimethylamine	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
n-nitrosodiphenylamine	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
n-nitrosodipropylamine	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
pentachlorophenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
phenanthrene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
phenol	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
pyrene	<1.13	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL

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PO#: 581435

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SAMPLE #: 436097 CLIENT SAMPLE ID:	SLUDGE			**DATE/TIME SAMPLED:**	09/28/06 @ 09:15
Semi-Volatile - 8270 A/B/N W/ BENZIDINE					
pyridine	<5.67	MG/KG DRY WT.	10/11/06	EPA 8270C	BCL
Surrogate (2-fluorophenol): 81% recovery,(phenol-d6): 128% recovery,(nitrobenzene-d5): 109% recovery,(2-fluorobiphenyl): 102% recovery,(2,4,6-tribromophenol): 107% recovery,(terphenyl-d14): 88% recovery					
Surrogate recovery acceptance limits are 50-130%. Sample contains additional hydrocarbons.					
Continuing Calibration Standard recoveries for n-nitrosodimethylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol and benzidine were below the established acceptance limits. Results for these analytes may be biased low.					
Solid Ultrasonic Extraction			10/10/06	EPA 3550B	ASI
Semi-Volatile - PCB'S					
aroclor 1016	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1221	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1232	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1242	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1248	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1254	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
aroclor 1260	<1.9	MG/KG DRY WT.	10/10/06	EPA 8082	KDI
Solid Ultrasonic Extraction			10/10/06	EPA 3550B	ASI
Semi-Volatile - PESTICIDES					
4,4`-ddd	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
4,4`-dde	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
4,4`-ddt	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
aldrin	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
alpha-bhc	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
beta-bhc	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
chlordane - technical	<6.0	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
delta-bhc	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
dieldrin	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
endosulfan I	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
endosulfan II	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
endosulfan sulfate	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
endrin	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
endrin aldehyde	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
gamma-bhc (lindane)	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
heptachlor	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
heptachlor epoxide	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
methoxychlor	<0.6	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
toxaphene	<6.0	MG/KG DRY WT.	10/11/06	EPA 8081A	KDI
Surrogate (2,4,5,6-tetrachloro-m-xylene): 126% recovery,(decachlorobiphenyl): 48% recovery,					
Surrogate recovery acceptance limits are 50-130%.					
Solid Ultrasonic Extraction			10/10/06	EPA 3550B	ASI
SOLIDS, TOTAL	22	PERCENT	10/02/06	SM18 2540B	CRI
Volatile - 8260					

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SAMPLE #: 436097 CLIENT SAMPLE ID: SLUDGE				DATE/TIME SAMPLED: 09/28/06 @ 09:15	
Volatile - 8260					
1,1,1,2-tetrachloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1,1-trichloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1,2,2-tetrachloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1,2-trichloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1-dichloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1-dichloroethene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,1-dichloropropene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2,3-trichlorobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2,3-trichloropropane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2,4-trichlorobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2,4-trimethylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2-dibromo-3-chloropropane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2-dibromoethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2-dichlorobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2-dichloroethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,2-dichloropropane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,3,5-trimethylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,3-dichlorobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,3-dichloropropane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
1,4-dichlorobenzene	0.282	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
2,2-dichloropropane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
2-butanone	32.6	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
2-chlorotoluene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
2-hexanone	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
4-chlorotoluene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
4-isopropyltoluene	0.744	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
4-methyl-2-pentanone	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
acetone	144	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
acrylonitrile	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
benzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
bromobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
bromochloromethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
bromodichloromethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
bromoform	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
bromomethane	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
carbon disulfide	0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
carbon tetrachloride	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
chlorobenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
chloroethane	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
chloroform	3.81	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
chloromethane	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE

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SAMPLE #: 436097 CLIENT SAMPLE ID:	SLUDGE			DATE/TIME SAMPLED: 09/28/06 @ 09:15	
Volatile - 8260					
cis-1,2-dichloroethene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
cis-1,3-dichloropropene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
dibromochloromethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
dibromomethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
dichlorodifluoromethane	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
ethylbenzene	0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
hexachlorobutadiene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
iodomethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
isopropylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
methylene chloride	0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
mtbe	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
naphthalene	0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
n-butylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
n-propylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
sec-butylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
styrene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
tert-butylbenzene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
tetrachloroethene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
toluene	1.15	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
trans-1,2-dichloroethene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
trans-1,3-dichloropropene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
trans-1,4-dichloro-2-butene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
trichloroethene	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
trichlorofluoromethane	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
vinyl acetate	<0.500	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
vinyl chloride	<0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
xylene, m+p	0.444	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
xylene, o	0.227	MG/KG DRY WT.	10/11/06	EPA 8260B	MNE
Surrogate (dibromofluoromethane): 105 % recovery,(toluene-d8): 100 % recovery,(bromofluorobenzene): 100 % recovery,(1,2-dichlorobenzene-d4): 104 % recovery,					
Surrogate recovery acceptance limits are 80-120%.					
Soil Extraction for Volatiles			09/29/06	EPA 5035	MNE

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Sample Receipt Temperature: 4 Degrees C

David R. Hill
Laboratory Director

10/12/2006
Print Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated. Report relates only to the samples as received by the laboratory and shall not be reproduced except in full, without written approval from Environmental Laboratory Services.

Environmental
LABORATORY SERVICES

Q20745

TO: ENVIRONMENTAL LABORATORY SERVICES
7280 CASWELL STREEN, HANCOCK AIR PARK
NORTH SYRACUSE, NY 13212
PHONE 315-458-8033, FAX 315-458-0249

CHAIN OF CUSTODY RECORD

CLIENT:CITY OF PLATTSBURGH-WPCP
CLIENT CONTACT: BILL ELLSWORTH
CLIENT PHONE 518-563-7172

SAMPLER'S NAME>> William Ellsworth
(PLEASE PRINT)

PROJECT LOCATION:>>__CITY OF PLATTSBURGH

Environmental Lab. Services Contact: Wendy Umberger

PURCHASE ORDER # 581435

TURNAROUND TIME REQUESTED: NORMAL

ELS SMPL #	SAMPLEID	DATESMPL	TIME	MATRIX	TYPE	NOC	PRES	DETECT LIM PPB	ANALYSES
	SLUDGE *	9/19/06	2:00	SOIL	COMP	1*	10	SEE BELOW	EPA 8260, SOLIDS ON COMPOSITE
	SLUDGE *	9/20/06	9:15	SOIL	COMP	1*	10	SEE BELOW	EPA 8270 ACID EXTRACTABLES
	SLUDGE *	9/21/06	8:10	SOIL	COMP	1*	10	SEE BELOW	EPA 8270 BASE NEUTRALS+BENZIDINE
13:00 9/24 NB	SLUDGE *	9/24/06	9:00	SOIL	COMP	1*	10	SEE BELOW	EPA 8080 PESTICIDES/ PCBS(NEED LOW DL ON PCB'S)
	SLUDGE *	9/25/06	6:30	SOIL	COMP	1*	10	SEE BELOW	TOTAL PHENOLS
9-28-06 9:15	SLUDGE *	9/[illegible]/06	2:45	SOIL	COMP	1*	10	SEE BELOW	TOTAL CYANIDE
	SLUDGE *			SOIL	COMP	*	10	SEE BELOW	FULL TCLP ANALYSES ON 6 JAR COMPOSITE, SEE DETAILS BELO

SAMPLED BY:(SIGNATURE)
>> William Ellsworth
DATE/TIME
>> 9/28/06 1200

RECEIVED BY:(SIGNATURE) Sharon Bass DATE/TIME 9/27 1200

RELINQUISHED BY:(SIGNATURE) William Ellsworth 9/28/06 1200

RECEIVED BY:(SIGNATURE)

DISPATCHED BY:(SIGNATURE) Sharon Bass 9/27/06 1500

RECEIVED FOR LABORATORY BY: 9/28/06 1200

PRESERVATIVES

1. HCL	6. ASCORBIC
2. HNO3	7. H2SO4
3. NAOH	8. FILTERED
4. NAS203	9. N (NOT PRESERVED)
5. ZN ACET	10. OTHER_____

SAMPLE CONDITION:

1. SAMPLES INTACT? (Y)N
2. CUSTODY SEALS INTACT? (Y)N
3. PRESERVED PROPERLY? (Y)N
4. AMBIENT OR CHILLED? 4.2°
5. COC RECEIVED WITH (Y)N SAMPLES?

METHOD OF SHIPMENT: UPS DATE:>> 9/27/06

NOTES/COMMENTS:
Sampler Tel - 9/19 - AP 9/25 - VE
9/20 - RM 9/26 - AP
9/21 - VE
9/24 - AP

DETECTION LIMIT REQUIREMENTS: (IN PPM)

TOTAL MELS(PPM)(MG/KG DRY WT)	OTHER ANALYTES
AS1.5	PENTACHLOROPHENOL 3.5 MG/KG
CD2	TOTAL PHENOLICS 1.0 MG/KG
CR5	NAPTHALENE 0.7MG/KG
CU25	METHYLENE CHLORIDE 0.2MG/KG
PB20	TRICHLOROETHYLENE 0.2 MG/KG
HG0.5	TOLUENE 0.2 MG/KG
NI20	BIS-2-ETHYL-HEXYL-PHTHALATE 3.0 MG/KG
SE 1	BENZIDINE 3.0 MG/KG
AG25	CYANIDE 0.5 MG/KG
ZN20	.DL'S UPDATED 11/95
MO10	PCB'S 0.08 MG/KG

SEND A COPY OF THIS COC, COMPLETED, BACK TO OUR LAB

* SPECIAL INSTRUCTIONS

LAB COMPOSITE GRAB SAMPLES INTO ONE, BEFORE ANALYSES
WE NEED AS LOW A DETECTION LIMIT AS POSSIBLE ON ALL ANALYTES, ESPECIALLY PCB'S
Report percent solids on composite sample
Report all analyses on a dry weight basis
Report TCLP analysis as a separate project id and separate report

COCELS.WDB LOCATION Sludge FREQ. Annual REVISED-10/8/2004

Special Instructions

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0526, (800) 842-4667

ELAP# 11375

October 20, 2006

Mr. Bill Ellsworth
City of Plattsburgh
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901

Project: 220945

Dear Mr. Ellsworth:

We have looked into the reporting excursions identified in the above referenced project. The PCB reporting limit is high due to interferences in the sample. In the analytical batch the sludge sample was spiked to a level of 0.37 mg/kg dry wt. The result of that analysis was a recovery of 10,498%, which is due to the matrix interferences. This was following a copper and Florisil cleanup of the extract. We made multiple dilutions of the extract to be able to identify PCBs and are most confident in the 50X analysis..

If you have future needs for below normal reporting levels we should discuss to modify procedures to potentially achieve the levels of concern.

Sincerely,

David R. Hill
Technical Director

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0526, (800) 842-4667

Laboratory Analysis Report

PLATTSBURGH WPCP, CITY OF
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
ATTN: Mr. Bill Ellsworth

PO#: 581435

PROJECT #: 220946
RECEIVED: 09/28/2006 @ 09:00

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 436098 CLIENT SAMPLE ID: SLUDGE				DATE/TIME SAMPLED: 09/28/06 @ 09:15	
Semi-Volatile - TCLP HERBICIDES					
2,4,5-tp (silvex)	<0.005	MG/L	10/09/06	EPA 8151A	KDI
2,4-d	<0.005	MG/L	10/09/06	EPA 8151A	KDI
Aqueous Separatory Funnel Extraction			10/05/06	EPA 3510C	ASI
TCLP-Semi/Non-Volatile Prep/Extraction			10/04/06	EPA 1311	BDR
Semi-Volatile - TCLP PESTICIDES					
chlordane - technical	<0.005	MG/L	10/09/06	EPA 8081A	KDI
endrin	<0.001	MG/L	10/09/06	EPA 8081A	KDI
gamma-bhc (lindane)	<0.001	MG/L	10/09/06	EPA 8081A	KDI
heptachlor	<0.001	MG/L	10/09/06	EPA 8081A	KDI
heptachlor epoxide	<0.001	MG/L	10/09/06	EPA 8081A	KDI
methoxychlor	<0.001	MG/L	10/09/06	EPA 8081A	KDI
toxaphene	<0.005	MG/L	10/09/06	EPA 8081A	KDI
Aqueous Separatory Funnel Extraction			10/05/06	EPA 3510C	ASI
Semi-Volatile - TCLP-SEMIVOLATILES					
2,4,5-trichlorophenol	<0.100	MG/L	10/10/06	EPA 8270C	BCL
2,4,6-trichlorophenol	<0.100	MG/L	10/10/06	EPA 8270C	BCL
2,4-dinitrotoluene	<0.100	MG/L	10/10/06	EPA 8270C	BCL
hexachlorobenzene	<0.100	MG/L	10/10/06	EPA 8270C	BCL
hexachlorobutadiene	<0.100	MG/L	10/10/06	EPA 8270C	BCL
hexachloroethane	<0.100	MG/L	10/10/06	EPA 8270C	BCL
nitrobenzene	<0.100	MG/L	10/10/06	EPA 8270C	BCL
pentachlorophenol	<0.100	MG/L	10/10/06	EPA 8270C	BCL
pyridine	<0.100	MG/L	10/10/06	EPA 8270C	BCL
total cresol	<0.100	MG/L	10/10/06	EPA 8270C	BCL

Surrogate (2-fluorophenol): 41% recovery,(phenol-d6): 48% recovery,(nitrobenzene-d5): 80% recovery,(2-fluorobiphenyl): 77% recovery,(2,4,6-tribromophenol): 103% recovery,(terphenyl-d14): 106% recovery,
Surrogate recovery acceptance limits are 50-130%.
Continuing Calibration Standard recovery for Pyridine was below the established acceptance limits. Results for this analyte may be biased low.

Aqueous Separatory Funnel Extraction			10/05/06	EPA 3510C	ASI
TCLP MERCURY	<20.0	UG/L	10/11/06	EPA 7470A	CRI
TCLP Mercury Prep			10/10/06	EPA 7470A	BDR

PLATTSBURGH WPCP, CITY OF
Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
ATTN: Mr. Bill Ellsworth

PO#: 581435

PROJECT #: 220946
RECEIVED: 09/28/2006 @ 09:00

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 436098 CLIENT SAMPLE ID: SLUDGE				DATE/TIME SAMPLED: 09/28/06 @ 09:15	
TCLP METALS (RCRA7)					
arsenic	<1.00	MG/L	10/06/06	EPA 6010	CRI
barium	<2.00	MG/L	10/06/06	EPA 6010	CRI
cadmium	<0.05	MG/L	10/06/06	EPA 6010	CRI
chromium	<0.100	MG/L	10/06/06	EPA 6010	CRI
lead	<0.50	MG/L	10/06/06	EPA 6010	CRI
selenium	<1.00	MG/L	10/06/06	EPA 6010	CRI
silver	<0.10	MG/L	10/06/06	EPA 6010	CRI
Metals Digestion			10/05/06	EPA 3010A	BDR
Volatile - TCLP VOLATILES					
1,1-dichloroethene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
1,2-dichloroethane	<0.100	MG/L	10/11/06	EPA 8260B	MNE
1,4-dichlorobenzene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
2-bulanone	0.982	MG/L	10/11/06	EPA 8260B	MNE
benzene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
carbon tetrachloride	<0.100	MG/L	10/11/06	EPA 8260B	MNE
chlorobenzene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
chloroform	<0.100	MG/L	10/11/06	EPA 8260B	MNE
tetrachloroethene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
trichloroethene	<0.100	MG/L	10/11/06	EPA 8260B	MNE
vinyl chloride	<0.100	MG/L	10/11/06	EPA 8260B	MNE
Surrogate (dibromofluoromethane): 104 % recovery,(toluene-d8): 100 % recovery,(bromofluorobenzene): 99 % recovery,(1,2-dichlorobenzene-d4): 100 % recovery,					
Surrogate recovery acceptance limits are 80-120%.					
TCLP-ZHE Prep/Extraction			10/05/06	EPA 1311	BDR

Sample Receipt Temperature: 4 Degrees C

David R. Hill
Laboratory Director

10/12/2006
Print Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated. Report relates only to the samples as received by the laboratory and shall not be reproduced except in full, without written approval from Environmental Laboratory Services.

Environmental
LABORATORY SERVICES

TO: ENVIRONMENTAL LABORATORY SERVICES
7280 CASWELL STREEN, HANCOCK AIR PARK
NORTH SYRACUSE, NY 13212
PHONE 315-458-8033, FAX 315-458-0249

CHAIN OF CUSTODY RECORD 220446

CLIENT:CITY OF PLATTSBURGH-WPCP
CLIENT CONTACT: BILL ELLSWORTH
CLIENT PHONE 518-563-7172

SAMPLER'S NAME>> William Ellsworth Jr
(PLEASE PRINT)

PROJECT LOCATION:>>__CITY OF PLATTSBURGH

Environmental Lab. Services Contact: Wendy Umberger

PURCHASE ORDER # 581435

TURNAROUND TIME REQUESTED: NORMAL

ELS SMPL #	SAMPLEID	DATESMPL	TIME	MATRIX	TYPE	NOC	PRES	DETECT LIM PPB	ANALYSES
	SLUDGE *	9/19/06	2000	SOIL	COMP	1*	10	SEE BELOW	EPA 8260, SOLIDS ON COMPOSITE
	SLUDGE *	9/20/06	915	SOIL	COMP	1*	10	SEE BELOW	EPA 8270 ACID EXTRACTABLES
	SLUDGE *	9/21/06	810	SOIL	COMP	1*	10	SEE BELOW	EPA 8270 BASE NEUTRALS+BENZIDINE
	SLUDGE *	9/24/06	1900	SOIL	COMP	1*	10	SEE BELOW	EPA 8080 PESTICIDES/ PCBS(NEED LOW DL ON PCB'S)
	SLUDGE *	9/25/06	1630	SOIL	COMP	1*	10	SEE BELOW	TOTAL PHENOLS
	SLUDGE *	9/26/06	2045	SOIL	COMP	1*	10	SEE BELOW	TOTAL CYANIDE
436098	SLUDGE *			SOIL	COMP	*	10	SEE BELOW	FULL TCLP ANALYSES ON 6 JAR COMPOSITE, SEE DETAILS BELO
9-28-06									
9:15									

SAMPLED BY:(SIGNATURE)
>> William Ellsworth

DATE/TIME wfe
>> 9/27/06 , 1200

RECEIVED BY:(SIGNATURE) Sharon Lewis DATE/TIME 9/27 1200

RELINQUISHED BY:(SIGNATURE) William Ellsworth

DATE/TIME wfe
9/27/06 , 1200

RECEIVED BY:(SIGNATURE)

DISPATCHED BY:(SIGNATURE) Sharon Lewis

9/27/06 , 1500

RECEIVED FOR LABORATORY BY: 9/27/06 1500

PRESERVATIVES

1. HCL	6. ASCORBIC
2. HNO3	7. H2SO4
3. NAOH	8. FILTERED
4. NAS203	9. N (NOT PRESERVED)
5. ZN ACET	10. OTHER_____

SAMPLE CONDITION:

1. SAMPLES INTACT? (Y)N
2. CUSTODY SEALS INTACT? (Y)N
3. PRESERVED PROPERLY? (Y)N
4. AMBIENT OR CHILLED? 4.2°
5. COC RECEIVED WITH (Y)N SAMPLES?

METHOD OF SHIPMENT: UPS DATE:>> 9/27/06 wfe

DETECTION LIMIT REQUIREMENTS: (IN PPM)

TOTAL MELS(PPM)(MG/KG DRY WT)		OTHER ANALYTES	
AS 1.5		PENTACHLOROPHENOL	3.5 MG/KG
CD 2		TOTAL PHENOLICS	1.0 MG/KG
CR 5		NAPTHALENE	0.7MG/KG
CU 25		METHYLENE CHLORIDE	0.2MG/KG
PB 20		TRICHLOROETHYLENE	0.2 MG/KG
HG 0.5		TOLUENE	0.2 MG/KG
NI 20		BIS-2-ETHYL-HEXYL-PHTHALATE	3.0 MG/KG
SE 1		BENZIDINE	3.0 MG/KG
AG 25		CYANIDE	0.5 MG/KG
ZN 20		.DL'S UPDATED 11/95	
MO 10		PCB'S	0.08 MG/KG

NOTES/COMMENTS:
Sampler Id - 9/19 - AP 9/25 - VE
9/20 - RM 9/26 - AP
9/21 - VE
9/24 - AP

SEND A COPY OF THIS COC, COMPLETED, BACK TO OUR LAB

* SPECIAL INSTRUCTIONS

LAB COMPOSITE GRAB SAMPLES INTO ONE, BEFORE ANALYSES
WE NEED AS LOW A DETECTION LIMIT AS POSSIBLE ON ALL ANALYTES, ESPECIALLY PCB'S
Report percent solids on composite sample
Report all analyses on a dry weight basis
Report TCLP analysis as a separate project id and separate report

COCELS.WDB . LOCATION Sludge FREQ. Annual REVISED-10/8/2004

Special Instructions

Bill-Fyi

Peru

ATTACHMENT A
HAULED DEWATERED SEWAGE SLUDGE MONITORING REPORT

REPORT DUE

FACILITY NAME: Peru water Pollution Control Plant
SAMPLED BY: G. Timmons
SAMPLE LOCATION: Plant north Bead 57, (Press)
CONTACT PERSON: Greg Timmons
SAMPLE DATE/TIME: 4-04-01 /
PHONE NUMBER: 518-643-5221 or 643-8125

PARAMETER	UNITS	RESULT	MG/KG* REQUIRED DETECTION LIMIT		WASTE MG/KG* LIMIT
ARSENIC, TOTAL	MG/KG	0.27	5		41
CADMIUM, TOTAL	MG/KG	0.21	3		10
CHROMIUM, TOTAL	MG/KG	5.62	10		1200
COPPER, TOTAL	MG/KG	245	10		1500
LEAD, TOTAL	MG/KG	43	20		300
MERCURY, TOTAL	MG/KG	1.05	2		17
MOLYBDENUM, TOTAL	MG/KG	1.10	5		18
NICKEL, TOTAL	MG/KG	17	30		420
SELENIUM, TOTAL	MG/KG	0.23	4		36
ZINC, TOTAL	MG/KG	204	100		2800
PCB1016	MG/KG	0.2	0.08	NOTE 1	
PCB1221	MG/KG	0.2	0.08	NOTE 1	
PCB1232	MG/KG	0.2	0.08	NOTE 1	
PCB1242	MG/KG	0.2	0.08	NOTE 1	
PCB1248	MG/KG	0.2	0.08	NOTE 1	
PCB1254	MG/KG	0.2	0.08	NOTE 1	
PCB1260	MG/KG	0.2	0.08	NOTE 1	
TOTAL SOLIDS (%SOLIDS)	% SOLIDS	29	NA	NOTE 1	
TOTAL VOLATILE SOLIDS	%VOL.SOLID	26	NA	NOTE 1	
TOTAL KJELDAHL NITROGEN	MG/KG	8993	100	NOTE 1	
AMMONIA (AS N)	MG/KG	5562	100	NOTE 1	
PH	PH	6.69	NA	NOTE 1	
TOTAL PHOSPHORUS	MG/KG	5669	100	NOTE 1	
HEXAVALENT CHROMIUM	MG/KG				

NOTE 1=MONITORING REQUIRED WITH NO PERMIT LIMITS FOR THIS ANALYTE

HUDSON ENVIRONMENTAL SERVICES, INC.
Mail: 22 Hudson Falls Rd., So. Glens Falls, NY 12803
Delivery: 211 Ferry Blvd., So. Glens Falls, NY 12803
Phone: 518/747-1060 Fax: 518/747-1062

ANALYTICAL TEST RESULTS
N.Y.S.D.O.H. LAB ID#11140

CLIENT: Town of Peru

SAMPLE DESCRIPTION: Pressed Dewatered Sludge

MATRIX: Sludge

LOCATION: WWTP

H.E.S. #: 010404H01

DATE SAMPLED: 04/04/01

DATE SAMPLE RECD: 04/04/01

TIME SAMPLED: 11:00 am

TYPE SAMPLE: Grab

SAMPLER: G.Timmons/T.of Peru

PARAMETER	METHOD	RESULT	UNITS	TEST DATE
pH	SW846-9045A	6.69	su	04/05/01
Total Solids	EPA 160.3	29	%	04/05/01
Total Volatile Solids	EPA 160.4	26	%	04/05/01
Ammonia-N	EPA 350.2	5,562	mg/kg	04/16/01
Total Kjeldahl Nitrogen-N	EPA 351.3	8,993	mg/kg	04/16/01
Nitrate-N	EPA 352.1	<1.8	mg/kg	04/05/01
Nitrite-N	EPA 354.1	<1.8	mg/kg	04/05/01
Total Phosphorus	EPA 365.2	5,669	mg/kg	04/05/01
Cadmium	SW846-7130	0.21	mg/kg	04/11/01
Chromium	SW846-7190	8.62	mg/kg	04/10/01
Copper	SW846-7210	245	mg/kg	04/09/01
Lead	SW846-7420	43	mg/kg	04/10/01
Mercury	SW846-7471A	1.09	mg/kg	04/13/01
Nickel	SW846-7520	17	mg/kg	04/09/01
Potassium	SW846-7610	1,990	mg/kg	04/12/01
Zinc	SW846-7950	204	mg/kg	04/09/01
Arsenic	SW846-7060A	0.27	mg/kg	04/11/01
Molybdenum	SW846-7480	1.10	mg/kg	04/11/01
Selenium	SW846-7740	0.23	mg/kg	04/11/01
Total PCB's	SW846-8082	<0.2	mg/kg	04/12/01

* All results reported on a dry weight basis except TS & TVS

Approval By: MH

Date: 4/19/01

Hudson Environmental Services, Inc. certifies that the services provided were performed in accordance with the New York State Department of Health, Environmental Laboratory Approval Program certification manual. In the event of an error, HES's sole responsibility will be to perform reanalysis at its own expense. HES, Inc. assumes no other liability for damages incurred from the interpretation or use of the analysis provided.

Appendix B – Portable AT Equipment

NSP-80
Bid Specifications

May 14, 2001

1.0 GENERAL: This specification describes a proportioning and mixing unit designed to mix dewatered sludge with an alkaline material(s). The cake sludge is dewatered by a belt filter press, centrifuge, or vacuum press, and it shall be in the range of 14% to 30% solids content. The equipment shall be designed and manufactured by a single manufacturer as a single unit to insure compatibility of all components. At a minimum, the unit shall consist of a hopper and metering device for sludge, and a mixer designed to thoroughly mix a wide range of cake sludges. Additional equipment will include three bulk storage silos with rotary vane feeders and u-trough screw conveyors.

2.0 SLUDGE HOPPER: A "V" bottom sludge hopper 12 feet in length shall be included. It is to be constructed of 10 gauge steel. Capacity shall be a minimum of 250 cu. ft. 250 cf × 52.5 #/cf (@ 25% Solids = 6.56 Tons

2.1.1 The bottom of the sludge hopper shall have two 12" diameter, full pitch augers for metering the sludge. The augers shall be powered by two Leeson 10 HP TEFC, high efficiency electric motor that is rated for inverter service. The drive shall include a Sumitomo gear reduction box. The drive shall be variable speed through a variable frequency drive.

2.2 The sludge hopper bottom shall be water tight so liquids will not escape. Each side of the hopper bottom will have a 3" drain plug.

2.3 The sludge hopper shall contain one agitator to break up the cake sludge and promote an even flow into the metering auger. The agitator shall be driven independently by a Leeson 3.0 Hp TEFC high efficiency constant speed electric motor drive and gear reduction box. The Sumitomo gear reduction box shall have a minimum reduction ratio of 357:1. The agitator paddles shall be bolt on and capable of being reversed.

2.4 The sides of the sludge hopper shall be sloped at no less than 64 degrees from the horizontal above the centerline of the agitator and 77 degrees from the centerline of the agitator to the hopper bottom. The ends shall be vertical.

2.5 The discharge hopper for the sludge and alkaline materials shall fit into the receiving hopper of the mix auger so as to control dust flow and sludge spillage. It shall have removable plates on the side and end of the sludge dispensing hopper for inspection/service/calibration. A calibration chute and rake shall be included.

3.0 MIXER: The homogenizing mixer shall be ten (10') feet long and twenty one (21")

inches in diameter and shall thoroughly mix the sludge and alkaline material. Mixing action shall be adjustable by the following methods. A) mixer speed (rpm) B) operating angle C) material feed rate. The manufacturer shall have demonstrated the capability of the mixer unit to thoroughly mix alkaline materials and cake sludge into a plastic condition where alkaline materials are in intimate contact with sludge particles, or the mixing is such that a granulated material is discharged from the mixer and all sludge balls are completely coated with alkaline material.

3.0 The auger flighting material shall be equipped with bolt on NI-HARD cast steel wear blades designed for long wear life.

3.2 The mixer shall be powered by a discharge end mounted hydraulic motor. The mixer speed shall be controlled by the operator from 50 rpm up to a maximum of 350 rpm.

3.3 The mix auger shall be contained in a steel frame with a flexible bottom boot. The top shall be enclosed for normal operation. The top shall be capable of being opened for inspection and clean out.

3.4 Mixer rpm shall be displayed on the operator panel via the touch screen display.

3.5 A hydraulic cylinder lift shall control the mix angle. In the event of mixer failure, the NSP will automatically shutdown.

4.0 POWER: A Leeson 75 HP, 3 phase, 460 volt electric motor shall be provided to operate a fixed displacement hydraulic pump that provides power to the mixer auger and mixer hoist.

5.0 The NSP shall be equipped with a fixed displacement hydraulic pump with a maximum flow of at least 52 gpm and a maximum continuous pressure rating of 2500 psi.

5.1 A 65 gallon hydraulic reservoir with sight gauge shall be included.

5.2 A 100 mesh suction filter shall be included.

5.3 A spin on type, 10 micron return line filter shall be included.

5.4 Pressure compensated flow control valves in each hydraulic circuit shall be included.

5.5 A water to oil shell and tube type oil cooler in the return line shall be included. This cooler shall have a capacity of 50,000 BTU. 10 gallons per minute water flow required for water to hydraulic oil cooler. A thermostatically controlled quick acting air operated water valve shall be included to control water flow to the cooler. The temperature at which the valve is activated is set by the operator.

6.0 ELECTRICAL: All electrical equipment shall meet or exceed the NATIONAL ELECTRIC CODE in effect at placement of purchase order. Electrical enclosures are constructed of mild steel material meeting NEMA 4, 12, or 13 specifications

6.1.1 460 volts, 60 Hz, 3 phase power is required. For other voltages or frequencies contact the factory.

6.2 POWER: A Leeson 75 HP, 3 phase, 460 volt electric motor shall be provided to operate the fixed displacement hydraulic pump that provides hydraulic power.

6.2.1 A main disconnect with circuit breaker type motor protector shall be included.

6.2.2 A safety shut down cable and trip switches shall be included around the inside lip of the sludge bin.

CONTROLS: A control panel located at the operator's station shall allow the operator to control all functions.

6.3.1 Surge suppression for the control panel shall be included.

6.3.2 Control for alkaline admixture(s) feed rate are supplied to the operator through the operator touch screen.

6.3.4 The hydraulic control valves shall be standard type configuration with handles. Their control shall be provided by integral air control cylinders mounted at the ends of the control valve spools. The air pressure signal shall be provided by electric over air solenoid valves.

6.4 WARNING SIGNAL (100 DB AUDIO HORN): Sounds a start up warning signal when NSP and/or conveyors are started in the semi or full automatic mode. Sounds a warning signal when level of sludge in sludge bin is at an unacceptable level. Sounds a warning signal in the event of equipment failure when in the semi or full automatic mode

6.5 TOUCH SCREEN DISPLAYS: The touch screen panel shall be capable of displaying digital readouts that show the amount processed in pounds (kg). Readouts for sludge and alkaline material shall be included. The readouts shall show both delivery rate or process total. In addition, a digital readout at the control panel shall indicate mixer auger rpm.

6.6 SLUDGE LEVEL SENSOR: An ultrasonic sensor that can detect the level of the sludge in the hopper shall be included. It shall be integrated into the total system to automatically start and stop the N-VIRO SLUDGE PROCESSOR as cake sludge is loaded into the hopper by means of a conveyor or similar device. The sensing device shall be adjustable and capable of measuring the level of sludge in the sludge bin. These measurements shall be used to send signals to external devices through a form

C relay, 5 relays are included.

1. Overflow alarm for the sludge bin.
2. Control the NSP, start/stop process
3. Input control (conveyor, belt filter press etc.)
4. Power on interlock. May be reset to another function.
5. Sensor fail warning LOE (loss of echo).

6.7 AUTOMATIC FEED CONTROL: An Omron programmable logic controller (PLC) with a feedback control system shall be included. The PLC system shall allow the operator to enter scale factors of alkaline material and cake sludge for continuous monitoring and control of materials flows and rates of productions. The system shall include a PLC and VFD feedback loop, and a password lock out via the touch screen display. Alkaline material feed rates are based upon a percentage of the wet weight of the sludge processed. After the desired percentage of alkaline material addition rate is entered, the PLC controls this percentage to be the same for any sludge processing rate entered.

7.0 SILOS: Three bulk material silo of 1400 cu. ft. will be provided for alkaline material. The alkaline material shall be transferred to the discharge hopper on the unit by U-trough screw conveyors. A waterproof connection shall be included between the auger discharge and the discharge hopper. The silos shall be constructed to be waterproof from normal rainfall. To insure complete unloading, the cone angle measured from horizontal shall be 60 degrees.

7.1 The silos shall be equipped with a high efficiency baghouse of the reverse pulse jet cleaning design. The cleaning area shall be 243 sq. ft. minimum. 120VAC and 3cfm are required for operation. A control panel shall be located at the fill pipe connection for the operator to activate the continuous cleaning when filling.

7.1.1 Each silo will use a rotary vane feeder to meter the alkaline material to the mixing chamber. Silo #1 will have a 12" rotary air lock with a ½ hp motor while silo's #2 and #3 will have 14" with a 1hp motor.

7.2 A pressure relief and vacuum relief valve shall be installed to prevent damage to the silo from pressure or vacuum.

7.3 A 4" diameter fill pipe and adapter accessible from ground level shall be included. The fill pipe shall include an inlet filter to restrict the entrance of particles larger that 3/8 inch.

7.4 Clear high and low fill level windows shall be included.

7.5.0 SCREW CONVEYORS FROM SILO TO NSP.

7.5.1 A 6" diameter u-trough screw conveyor shall transport alkaline materials from

bulk storage silo #1 to the mixing chamber on the NSP. A 9" u-trough screw conveyor will be used on silos #2 and #3. Auger construction shall include:

A. Minimum 10 gauge wall thickness.
B. Helicoid flighting with a minimum 3/16" root thickness.
C. Flighting welded to a minimum DOM tube/shaft of 2.375" OD with 7/32" wall thickness.

7.5.2 A 24" rack and pinion type shutoff gate shall be provided to allow service on the screw conveyors with material in the silos. Smaller shutoffs that restrict full flow to the input of the screw conveyor will not be accepted.

7.5.3 The silo screw conveyors shall be powered by three Leeson 3 HP 3 phase electric motors with gear reduction boxes. The transfer auger shall be powered by a Leeson 5 HP 3 phase electric motor with a gear reduction box. The electric motors shall be a high efficiency, TEFC, 230/460 VAC, 60 Hertz, 1750 rpm design motor.

7.5.4 A Dodge reducer/gearbox shall be supplied to provide rpm reduction to reach a final auger rpm of 175. The reducer shall be of a c- face design to readily accept a standard electric motor. Minimum reduction shall be 11.4:1. reducer design shall include:

A. Parallel gearing for straight through, countershaft power transfer.
B. Double reduction, 11.4:1 ratio, 188 rpm output.
C. Minimum 4500 in-lbs. Output torque rating.
D. Minimum 13.44 output horsepower rating.
E. Housing and covers shall be constructed of corrosion resistant class 30 gray iron with cast internal ribbing for additional strength.
F. All housings and end covers shall be either doweled or tenoned and precision machined for proper alignment.
G. Gearing shall be of the single helical design, and crown shaved or ground to provide an ellipsoid tooth design to assure meshing in the strongest tooth area.
H. All gears shall be case carburized for longer service life.
I. Reducer bearings shall be either ball or tapered roller type and provide a minimum 25,000 hour life.
J. All seals shall be of the spring loaded type and made of nitrile or viton materials.
K. Gears shall be splash lubricated with a synthesized lubricant.

7.5.5 **CONTROLS:** Allen Bradley motor starters and controls shall be provided. Motor control shall be controlled by the PLC for automatic operation. A remote service disconnect located at each electric motor shall be provided.

7.6 A ladder with safety cage for access to the top shall be provided. The safety cage with toe board encloses the full circumference of the top. Depending upon the silo height and when required by OSHA, a rest platform will be provided.

7.7 Three lifting eyes at the top of the silo shall be provided.

7.8 Six air diffusion pads located in the cone of each silo shall be included. The air inlet system to this valve shall include a water trap and filter. To supply compressed air to these air pads, a 10 gallon air reservoir mounted on the silo base will be provided. The pulsation of the air pads is controlled by the operator from the NSP operators station.

8.0 GENERAL

8.1 The sludge bins, control, and air compressor shall be mounted on an integral skid base.

8.2 **POWER REQUIREMENTS:** 460 volts, 60 Hz, 3 phase power is required.

8.3 **COMPRESSED AIR:** 100 psi air at 10 cfm is required to operate air diffusion aeration system, vibrators and valves. A 3 HP Champion "Advantage Series" air compressor with a 60 gallon horizontal reservoir and refrigerated air dryer shall be included.

8.4.0 **COATING PROCEDURE:** Standard Cemen Tech factory coating system. The following describes the coating procedure applied to the N-VIRO sludge processor (NSP) and to all appurtenant equipment, attachments and accessories.

8.4.1 **SURFACE PREPARATION:** The substrate to be coated shall be free from contaminants such as grease, oil, weld splatter, mil scale, or similar contaminants. The surface shall then be blasted to SSPC-SP6 (commercial blast cleaning) standards. The surface shall be clean and dry before application of the coating system.

8.4.2 **PRIME COAT:** The prime coat shall be one coat of 2 component, polyamide epoxy primer applied by spray application at 4-5 mils wet film thickness to achieve a 1.5-2.0 dry film thickness.

8.4.3 **TOP COAT:** The top coat shall be two coats of 2 component acrylic aliphatic urethane applied by spray application at 3.0-4.5 mils wet film thickness to achieve a 1.5-2.0 dry film thickness.

8.5 All structural fasteners meet or exceed grade 5, ASTM A449 specifications.

8.6 The carbon steel used in the fabrication of the NSP-80 and silos meets the following specifications:

Angles, beams, and hot rolled plate	ASTM A-36
Hot rolled sheet steel	ASTM A-569
Square and Rectangular tubing	ASTM A-500B

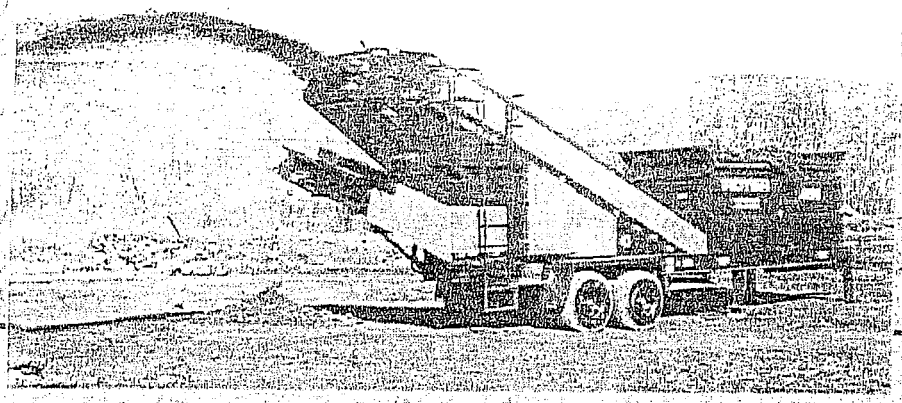
9.0 **OPERATIONS AND MAINTENANCE MANUALS:** Two O&M manuals shall

be provided with the CSP.

10.0 **CARE OF UNIT PRIOR TO INSTALLATION:** Between the time of arrival at the plant site and the time the unit is installed, care must be taken to insure that the unit is not damaged by either natural or man made causes. This is particularly applicable to the electronics and electrical apparatus including the PLC(s), ultrasonic level sensors, and the main control panel. These units will be securely wrapped at the factory and if not installed on the unit should be placed in a protected storage area until final installation. If they are installed, the factory wrap must be checked frequently and replaced if necessary. Damage incurred may not be covered under Cemen Tech warranty. If you have any questions consult the factory.

Appendix C – Shredder

Model 466 Soil Shredder - Mixer

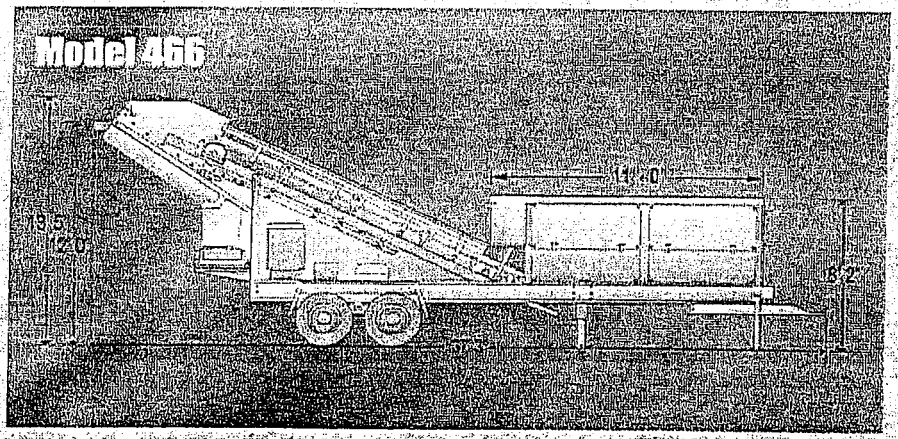


Equipment for Processing Soil, Peat and Organic Materials

For large scale soil processing and blending operations:

Top Soil Manufacturing • Excavating Companies
Municipalities

Dimensions and Specifications



Standard Features

- Computer controlled, self-cleaning shredder belt
- Self-regulating infeed and incline conveyers
- Remote control option available
- U.S fittings
- No transport permits required

Specification	Model 466
Height	13'-6"
Width	8'-0"
Length	37'-3"
Loading Height	8'-2"
Discharge Height	12'-0"
Hopper Capacity	11'-0"
Receiving Hopper Opening	7'-2"
Shredder Belt Width	42"
Power Plant (John Deere)	Diesel
Horsepower	105
Weight	25,000 lbs.
Transport	Pintle Hook

Appendix D – Fixed Equipment Summary Report

Plattsburgh, NewYork

David M. Powell
Chief Plant Operator

Water Pollution Control Plant
53 Green Street
Plattsburgh, NY 12901
518 - 563-7172
Fax: 518 - 566-8540

MEMORANDUM

TO: Jon Ruff, Environmental Manager

FROM: David M. Powell, Chief Plant Operator DMP

DATE: March 22, 2006

RE: **CCCF CAPACITIES, FEED RATES**

In looking up this information, I relied on the original bid specification and information supplied in the Fairfield Service Corp. drawings for the compost system. I am including the pertinent information for all the equipment that would be used, this includes the bins, conveyors, and mixers.

For the bins -

1. Sludge Bins (1 & 2)

   Maximum - 52 TPH @ 70 LBS/FT3 = 1,500 FT3/HR.

   Minimum - #1 - 31 TPH @ 50 LBS/FT3 = 1,200 FT3/HR.
   #2 - 4.5 TPH @ 15 LBS/FT3 = 590 FT3/HR.

2. Recycle Bins (1 & 2)

   Maximum - 54 TPH @ 45 LBS/FT3 = 2,400 FT3/HR.

   Minimum - #1 - 4.5 TPH @ 15 LBS/FT3 = 590 FT3/HR.
   #2 - 30 TPH @ 30 LBS/FT3 = 2,000 FT3/HR.

Conveyors -

1. Bin Discharge Conveyors - same TPH as those given for each individual bin.

2. Mixer Feed Conveyor - Load up to 135 TPH @ 54 LBS/FT3

3. Mixer Discharge Conveyor - Load up to 135 THP @ 54 LBS/FT3

Mixer -

1. Designed for a mixture of components at a feed rate of 69.3 TPH (as per bid specification) @ 42.5 LBS/FT3

CONTINUED...

The system's limiting factor is the pug mill mixer capacity at 69.3 TPH. The bins and conveyor's can handle loadings well in excess of what the mixer can take in. Using the information supplied in the bid specification, the bottleneck is in the middle of the mixing/transporting system. It would have made more sense to have the bins sized lower so one could never overload the system if all components downstream of the bins had higher capacities. I know of times where the mixer did plug up and stop and it may have been due to overloading the mixer in tonnage, or the consistency of the material being mixed caused the outlet of the mixer to bridge over. By changing the kinds of material being mixed (ash and lime) this may alter these loadings up or down, depending on their densities. Using the N-Viro information for mixing, they used 29 lbs/ft3 for fly ash, 68.6 lbs/ft3 for lime kiln dust, and 65 lbs/ft3 for lime (from Tetra Tech, Inc. 9/20/01, fax concerning CCCF permit modification information).

You had stated that Paul LaFond had run a test using the bins/mixers/conveyors to make up an N-Viro mixture. I am wondering at what rates he mixed the material and if he noted any build up in the mixer. When the system was used to make compost, the infeed mixture would weigh 30 - 40 lbs/ft3 and in comparison, the N-Viro mixture weighs in at 50 - 55 lbs/ft3, so we could see an issue with the mixer at high feed rates where it would overload the motors. Possibly by upsizing the motors, this would give us the capability of running the mixers at a higher feed rate for N-Viro.

The sludge bins could probably run without any issues and possibly the two recycle bins might not make their maximum outputs due to the density of the kiln dust or lime being a lot denser (45 lbs/ft3 - recycle vs. 65 - 70 lbs/ft3 for kiln dust, lime). Since these bins could handle a lot more than what the mixer was designed to take, I believe the system could run without having overload situations. Additionally, the conveyors do not appear to be an issue since they are rated at about twice the designed output of the mixers.

Everything seems to point to the mixers as the area of concern with a designed throughput of 69.3 TPH, so the feeds would have to work down from there, unless we modified the system by adding bigger mixer motors (hopefully just to reach the designed throughput).

CONTINUED...

Using 2005 data (1/1/05 - 6/30/05) for N-Viro processing of sludge other that the City's, they used the following:

Lime	917 wt.	Sludge 12,222 wt.
Kiln Dust	850 wt.	
Ash	8,267 w.t.	
TOTAL	**10,034 w.t.**	

The sludge is 20% solids, and the other ingredients are 99% solids. So for every wet ton of sludge mixed, an additional 0.82 wet tons of ingredients are added to get N-Viro. For each individual component, it works out to be 9% lime, 8.5% kiln dust, and 82.5% ash - for each .82 wet tons of ingredients added to each wet ton of sludge. In terms of volumes, we get the following for the 0.82 wet tons:

1.	**For lime -**	**.82 w.t. x 9%**	**=**	**148 lbs.**
2.	**For kiln dust-**	**.82 w.t. x 8.5%**	**=**	**139 lbs.**
3.	**For ash -**	**.82 w.t. x 82.5%**	**=**	**1353 lbs.**

Using densities of 29 lbs/ft3 for ash, 65 lbs/ft3 for lime, and 68.6 lbs/ft3 for kiln dust, we can get a volume of each item:

1. For lime - $\frac{\text{148 lbs.}}{\text{65 lbs/ft.3}}$ **= 2.28 ft3**

2. For kiln dust- $\frac{\text{139 lbs.}}{\text{68.6 lbs/ft.3}}$ **= 2.0 ft3**

3. For ash - $\frac{\text{1353 lbs.}}{\text{29 lbs/ft.3}}$ **= 46.7 ft3**

For sludge, a wet ton equals about 1.35 yd3 which equals about 36.5 ft.3.

As an example - processing 30 wet tons of sludge in an hour, the quantities would be:

A.	For sludge -	36.5 ft3 x 30 w.t.	=	1095 ft3
	For lime -	2.28 ft3 x 30 w.t.	=	68.5 ft3
	For kiln dust -	2 ft3 x 30 w.t.	=	60 ft3
	For ash -	46.7 ft3 x 30 w.t.	=	1401 ft3
	TOTAL VOLUME			**2224.5 ft3**

CONTINUED...

B. **Weight wise it is:**

For sludge	-	60,000 lbs.		
For lime	-	68.5 ft3 x 65 lbs/ft.3	=	4,453 lbs.
For kiln dust	-	60 ft. 3 x 68.6 lbs/ft3	=	4,116 lbs.
For ash	-	1401 ft3 x 29 lbs/ft3	=	40,629 lbs.
		TOTAL WEIGHT -		**109,198 lbs. or 54.6 w.t.**

So at the 30 WTPH feed rate of sludge, we would be about 79% of the design throughput of the mixer. The bins and conveyors are well within their rated capacities, and by using data shown for 30 wet tons per hour feed, it appears we could go up to about 38 WTPH of sludge to give us the designed 69.3 WTPH total feed for the mixer. Having concerns about how much the mixer can truly take, I would monitor motor loads as we ramped up the sludge feed.

At 38 WTPH of sludge, we would see about 69.3 WTPH total feed. Individually, we would see feed rates of:

C. **Weight wise at 38 WTPH feed rate:**

For sludge	-	76,000 lbs.		
For lime	-	2.28 ft3 x 38 w.t. x 65 lbs./ft3	=	5,632 lbs.
For kiln dust	-	2.0 ft3 x 38 w.t. x 68.6 lbs/ft3	=	5,214 lbs.
For ash	-	46.7 ft3 x38 w.t. x 29 lbs/ft3	=	51,463 lbs.
		TOTAL WEIGHT -		**138,309 lbs. or 69.16 w.t.**

D. **Ft3 volumes @ 38 WTPH feed rate:**

Sludge	-	51.3 yd3 or 1387 ft3
Lime	-	~ 87 ft3
Kiln Dust	-	76 ft3
Ash	-	~ 1775 ft3
TOTAL		**3,325 FT3 OR ~ 123 YD3**

CONTINUED...

The original design of the composting system for each digester was 85 WTPD of sludge, and it was to be processed in 2.75 hours (~ 31 WTPH sludge), and a total mixture of 190 WTPD (~69.1 WTPH). So this is where the mixer capacity comes from. So it would remain to be seen if that could be attained with different ingredients. Since the test that Paul LaFond did was of a short duration, it may not have shown any problems, but to use the system everyday, the problems may show up.

That is the way it looks on paper - in practical means, it may be a lot different. Any questions please let me know. Included are sections from the bid specifications and Fairfield drawings which were used for reference.

DMP:bl

cc: Files (2)

COMPOSTING SYSTEM DESIGN

ITEM 15Y.5

e. All digester control panels including the Power Distribution Panel, Bridge Control Panel, Process Control Panel and Oxygen Analyzer Panel.

f. Special Tools

MATERIALS OF CONSTRUCTION

All materials used in the fabrication and construction of the digester and ancillary equipment shall be new and of the best quality for the purpose intended. All material shall meet in full the applicable specifications of the American Society for Testing and Materials as listed below:

Structural Steel	A36
Gray Iron Castings	A48
Stainless Steel (Type 316)	A167
High Strength Low-Alloy Structural Steel	A242
High Strength Bolts for Structural Steel Joints, including suitable Nuts and Plain Hardened Washers	A325
Reinforcing Steel	A615 Grade 60

All structural aluminum shall be type 6061-T6 alloy.

DESIGN CONDITIONS OF SERVICE

Equipment provided with the digesters shall be designed to compost a mixture of raw sewage sludge, carbonaceous amendment and recycled compost. Each digester shall be capable of composting under design conditions, one hundred and ninety (190) wet tons per day of material, of which eighty five (85) wet tons is sludge. Design shall be based on average solids concentrations of 20% in the sludge, 60% in the carbonaceous amendment and 40% in the infeed mixture, all on a weight basis.

Carbonaceous amendment shall be sawdust, shredded bark, bark dust or a similar material which when combined with sludge and recycled compost will yield a 40% solids mixture by weight, and meet the other design conditions specified herein.

Detention time at design conditions shall be no less than fourteen (14) days with the height of the composting material not exceeding ten (10) feet.

Solids concentration shall be determined in accordance with the Standard Methods for the Examination of Water and Wastewater, 15th edition, Part 209G.

The Contractor's attention is directed to the following:

1. Initial daily loading has been estimated at approximately 95.0 wet tons of mixture per digester, of which 42.5 wet tons is sludge.

2. The system shall be capable of operating at any composting material depth from five to ten feet, while maintaining all performance requirements.

3. Each digester and appurtenant equipment shall be designed to feed, receive and discharge a minimum of 380 wet tons of the composting mixture, at a solids concentration of 40%, in no more than five and one half (5.5) hours.

15Y.6 DIGESTER AERATION SYSTEM

The Contractor shall supply complete and ready for operation a forced air aeration system for each digester. Both systems shall be identical in all respects and shall have a minimum of five separate, independently controlled, concentric aeration zones. Aeration zones shall be separated by concentric masonry weirs located on the digester floor.

The Contractor's attention is directed to the fact that the composting material will be used to deodorize all ventilation air from the Operations Building in as much as possible. Under the normal mode of operation this air shall be used as the process supply air. For each digester, process air shall be supplied by two blowers supplying a common process air duct. Intake air for each blower shall be from a common ventilating air duct. Each of the blowers shall be sized to supply 50 percent of the infeed air and shall force all excess air through the two innermost aeration zones. It shall be the Contractor's responsibility to size the aeration system to suit this method of operation and in all cases deliver the process air required for proper operation of the composting system.

The aeration system shall also be capable of using ambient air as the process supply in the event that it becomes unnecessary to force the ventilation air from the Operations Building through the composting material. The Odor Abatement System specified under Section 15W will be used as an alternate method of odor control.

The bins shall be of rectangular shape with side plates sloped outward from top to bottom and provided with a sloping bottom plate for drainage of excess water. The bins will receive material from dump trucks, front end loader or conveyor and the live bottom screws shall meter the material from the bin onto the cross-collector screw conveyor.

Each bin shall be furnished complete with negative sloped side sections, live bottom multiple screw feed section, cross-collector screw conveyor, power operated weatherproof cover, and all necessary appurtenances to provide a fully operational bin.

Bins include, but are not necessarily limited to:

a. Side plate sections

b. Multiple screw live bottom sections with motor drive assemblies

c. Twin intermeshing cross-collector screw conveyors

d. Power-operated weather covers

e. Controls

f. Supports and installation hardware

14G.9 SYSTEM DESIGN REQUIREMENTS

The bins shall be capable of receiving, storing, and discharging the stated material under the following conditions for 8 consecutive hours per day, 7 consecutive days per week, without shutting down for preventive maintenance.

Flow Range: Under design operating conditions the quantity of material discharged from each bin will be from 240 cu. ft./hr. at 15 lbs./cu. ft. up to 2,400 cu. ft./hr. at a bulk density of 45 lbs./cu. ft.

Bulk Density: On a gross basis, the bulk density of the feed material is expected to be within the range of 15 to 70 pcf.

Moisture: On a gross basis, the moisture content of the feed material is expected to be from 40 to 80 percent.

Particle Size: Particle size of the feed will vary. The material will be municipal sewage sludge that has been dewatered by means of belt presses before being trucked to the facility, carbonaceous amendment (e.g., sawdust, shredded bark, bark dust) or recycled compost.

Each bin shall have an effective capacity no less than 40 cu. yds. and shall be of the manufacturer's latest proven production model. Equipment shall be of heavy-duty construction and be designed for leak-free operation, low noise level, minimum vibration, safety of operation and shall comply with all applicable codes.

14G.10 BIN DESIGN

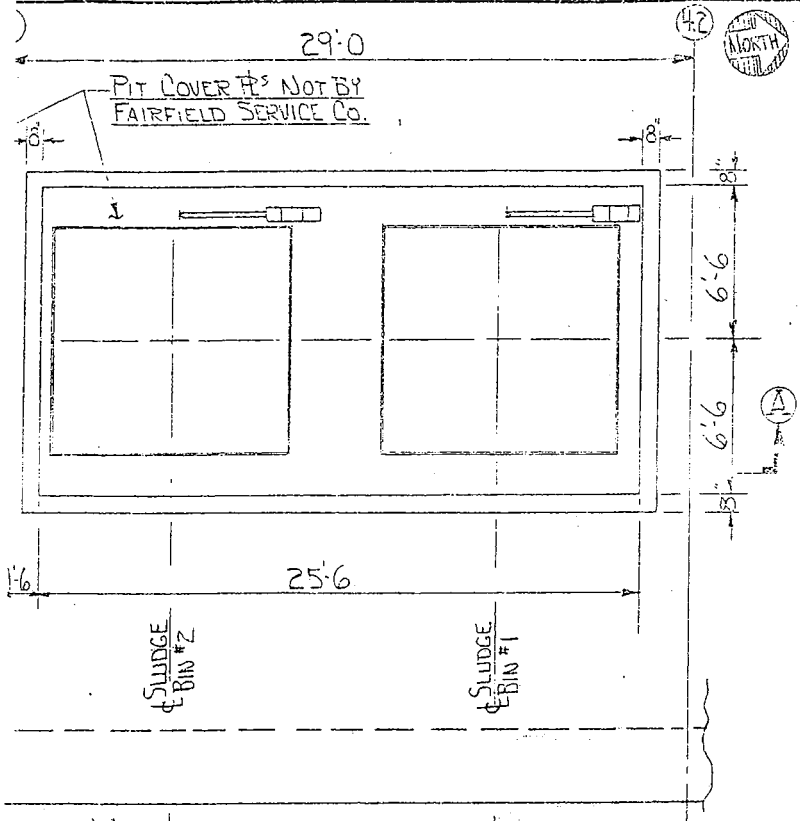
Each bin shall be constructed of welded ASTMA A 242 steel plate not less than 5/16 inch thick reinforced with ASTMA A36 steel shapes and shall have a weatherproof top cover of not less than 10 gauge ASTM A36 steel plate. Each top cover shall have a manually operated hinged top cover divided perpendicular to the loading side. The top cover surface shall be inclined approximately 20 degrees to the horizontal direction facing the loading side of the bin. The covers shall be designed for 50 psf snow loading.

Each bin shall be independently supported at the floor elevation as shown on the drawings. The legs shall be provided with base plates to substantially reduce this loading at the floor, and to allow anchor bolting. Bin and supports shall be designed to receive suitable impact loadings from sludge being dumped from trucks.

14G.11 BIN COVER

Each bin shall be provided with a manually controlled power operated cover hatch divided perpendicular to the loading side. The hatch lifting actuator shall utilize a 1 horsepower minimum, 230/460 volt electrically driven jackscrew connected by suitable levers to open the hatch to the full bin width or close the hatch within 2 minutes. The actuator shall be provided with a manual handwheel having an electrical interlock to override the electrical circuitry of the actuator. The actuator shall have internal overload switches. Two limit switches shall be provided on each cover to indicate open and closed cover position.

E F G AP BINS (4) H



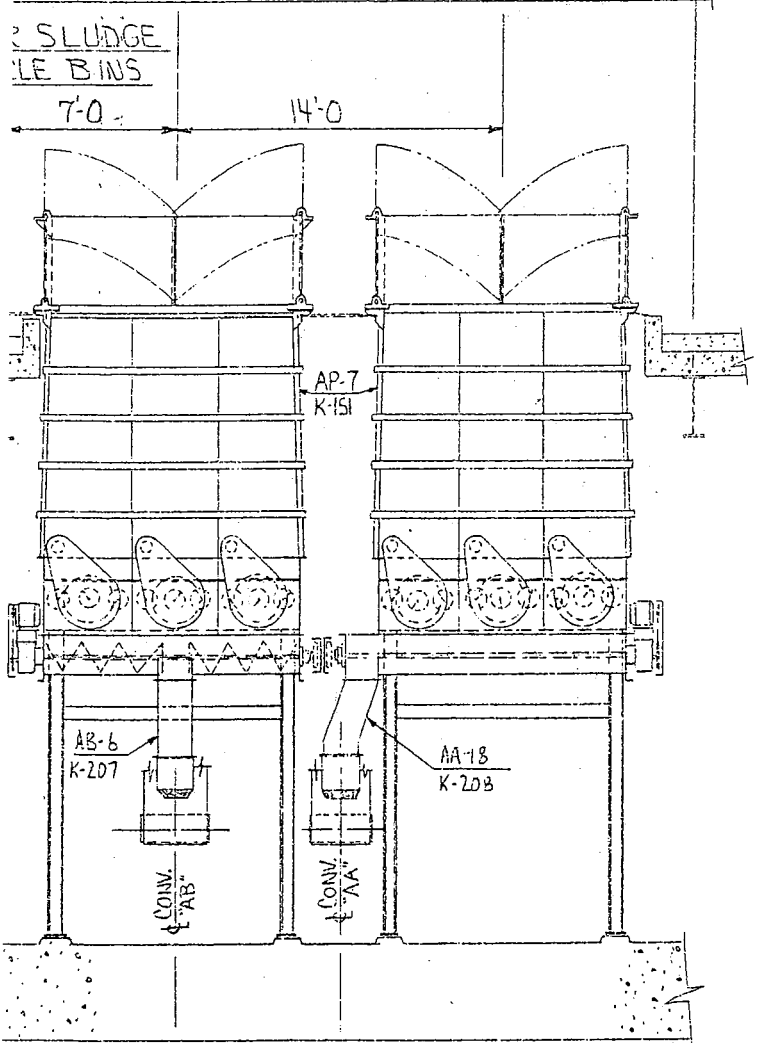
ITEM "AP" - FOUR LIVE BOTTOM BINS

SLUDGE BIN #1 - DEWATERED SLUDGE 50 TO 70 PCF
SLUDGE BIN #2 - DEWATERED SLUDGE OR CARBONACEOUS AMENDMENT 15 TO 70 PCF
RECYCLE BIN #1 - RECYCLED COMPOST OR CARBONACEOUS AMENDMENT 15 TO 45 PCF
RECYCLE BIN #2 - RECYCLED COMPOST 30 TO 45 PCF

PM NO.	QUAN.	DESCRIPTION
PMAP-2	20	12" DIA. LEFT HAND VARIABLE PITCH CONV. SCREWS: 3'-6" AT 1/2 PITCH, 3'-0" AT 2/3 PITCH, 5'-9" FULL PITCH AND REMAINING 1'-1-7/8" OF BARE PIPE. FLIGHTING WILL BE MOUNTED ON 5" DIA. SCHEDULE 80 #304 STAINLESS STL. PIPE X 13'-4-7/8" LG. FLIGHTS TO BE 1/4" THICK #304 STAINLESS STEEL WITH HARDFACE ALONG THEIR ENTIRE PERIPHERY, AND OUTER 2" OF THE CARRYING SURFACE. FLIGHTS WILL BE CONTINUOUSLY WELDED ON BOTH SIDES. DISCHARGE END (BARE PIPE) PREPARED FOR 3-7/16" DIA. SHAFT. INLET END PREPARED FOR 3" DIA. SHAFT.
PMAP-3	16	SAME AS ABOVE EXCEPT RIGHT HAND.
PMAP-4	36	FLG'D. GLAND SEAL FOR 3" DIA. SHAFT #P2038
PMAP-5	36	3" DIA. ROLLER BRG. PILLOW BLOCKS DODGE
PMAP-6	36	4" D.P. STL. GEAR, 14-1/2" DIA. P.A. 54 TEETH, 13-1/2" P.D., 14" O.D., 2" FACE FOR 3" DIA. SHAFT - DS454
PMAP-7	4	OIL TIGHT GEAR GUARDS
PMAP-8	36	3-7/16" DIA. TYPE "E" THRUST BRG'S. - FLANGED DODGE

DRIVE (1 TO 30 RPM)

PMAP-10	12	MOTORS 15 HP, 1750 RPM DC RELIANCE ELEC.
PMAP-36	12	REDUCERS SM-CYCLO REDUCER MODEL #1890
PMAP-38	12	DRIVE SPKT'S 16 ASA 200
PMAP-39	12	SHEAR PIN ASSEM. W/40T ASA 200 SPKT. W/SHEAR PINS
PMAP-3?	12	ASA 200 DRIVE CHAIN X 15'-8" LG. W/CONNECTING AND OFFSET LINKS
PMAP 15	12	OILTIGHT CHAINGUARDS
PMAP-40	12	DRIVE SHEAVE 5.6" P.D.
PMAP-41	12	DRIVEN SHEAVE 15" P.D.
PMAP-42	36	V-BELTS (3 PER DRIVE)
PMAP-43	12	V-BELT GUARD
PMAP-1	4	ANDCO ACTUATOR, MODEL #7324 FWCHA-011-21L-0-T-30 230/460 V, 3 PH, 60 HZ, NEMA DESIGN B, CLASS F INSULATION AND CLASS B TEMP. RISE W/1.1 SERVICE FACTOR, TRUNION MOUNTED AND HANDCRANK.
PMAP-14	4	EMERG. STOP SWITCHES (CONV. COMPONENTS) MODEL RS-1
PMAP-17	12	ZERO SPEED SWITCHES
PMCB-559	10	BIN LEVEL SWITCHES
PMAP-19	4	KNIFE GATE
PMAP 20	16	3-7/16" ø BRG. SKF #SYR 307M
PMAP-21	32	BUSHINGS 3/4" I.D.
PMAP-22	4	BUSHINGS 2" I.D.
PMAP-23	16	BUSHINGS 3/4" I.D.
PMAP-24	4	BUSHING 3/4" I.D.
PMAP-26	108	SCREW CONV COUPLING BOLTS FOR 3 7/16 ø SH.
PMAP-27	108	SCREW CONV COUPLING BOLTS FOR 3 ø SH.



B

NOTE #1 (SEE DWG K-8)

THE FLOW GUIDE TUBES & SHROUDS TO BE DETAILED AND SHOP INSTALLED IN PLACE

FIELD OPERATION TO DO FOLLOWING: FLOW GUIDE TUBES MAY BE ADJUSTED TO OBTAIN PROPER MATERIAL FLOW. THIS ADJUSTMENT IS IN THE FORM OF REMOVING ONE(1) FLOW GUIDE TUBE AT A TIME TO GET PROPER FLOW MATERIAL. SHROUD PLATES OVER SCREWS TO REMAIN IN PLACE ONLY IN BINS HANDLING SLUDGE AND REMOVED IN OTHER BINS WHEN NOT HANDLING SLUDGE.

REF. DWG'S.

PLOT PLAN & GEN. NOTES	K-1 & K-33
SYSTEM ARR.	K-1, 2 & 3
TYP. ARR. DETAILS	K-4 & 5
FOUNDATION PLAN	K-9
GEN. ARR. OF BINS	K-8

ON (A)

	BY	DATE
FOR FIELD USE	T SMITH	4-16-85
FOR DETAIL/FAB	T SMITH	4-16-85
FOR CUSTOMER APPROVAL		
TYPE OF ISSUE	BY	DATE

FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

TITLE: GEN. ARR. SLUDGE AND RECYCLE BINS

CURR. REV. C

Conveyors
AA, AC, AD, AE

i. Electric motors.

j. Voltage rating of motors.

k. Equipment drive guards.

l. Nameplates.

1.3 CONDITIONS OF SERVICE

The material to be handled will be dewatered sludge, carbonaceous amendment (e.g. sawdust, shredded bark, bark dust), recycled compost, or a mixture of the three. Materials to be handled by a specific belt conveyor are indicated on the drawings.

a. Bulk Density: The bulk density of the dewatered sludge is expected to vary from 50 to 70 lbs. per cu. ft. The bulk density of the carbonaceous amendment is expected to vary from 15 to 30 lbs. per cu. ft. The bulk density of the recycled compost (and compost) is expected to vary from 30 to 45 lbs. per cu. ft.

b. Moisture Content: The moisture content of the dewatered sludge is expected to be a maximum of 8[illegible] percent, carbonaceous amendment is expected to a maximum of 40 percent, and the recycled compost (and compost) is expected to be a maximum of 45 percent.

c. Particle Size: Particle size will vary.

d. Duty Cycle: Eight hours per day, seven days per week. Conveyors shall be capable of a minimum of 1[illegible] stops and starts per hour under fully loaded conditions.

Conveyor capacities shall be as indicated on the drawings.

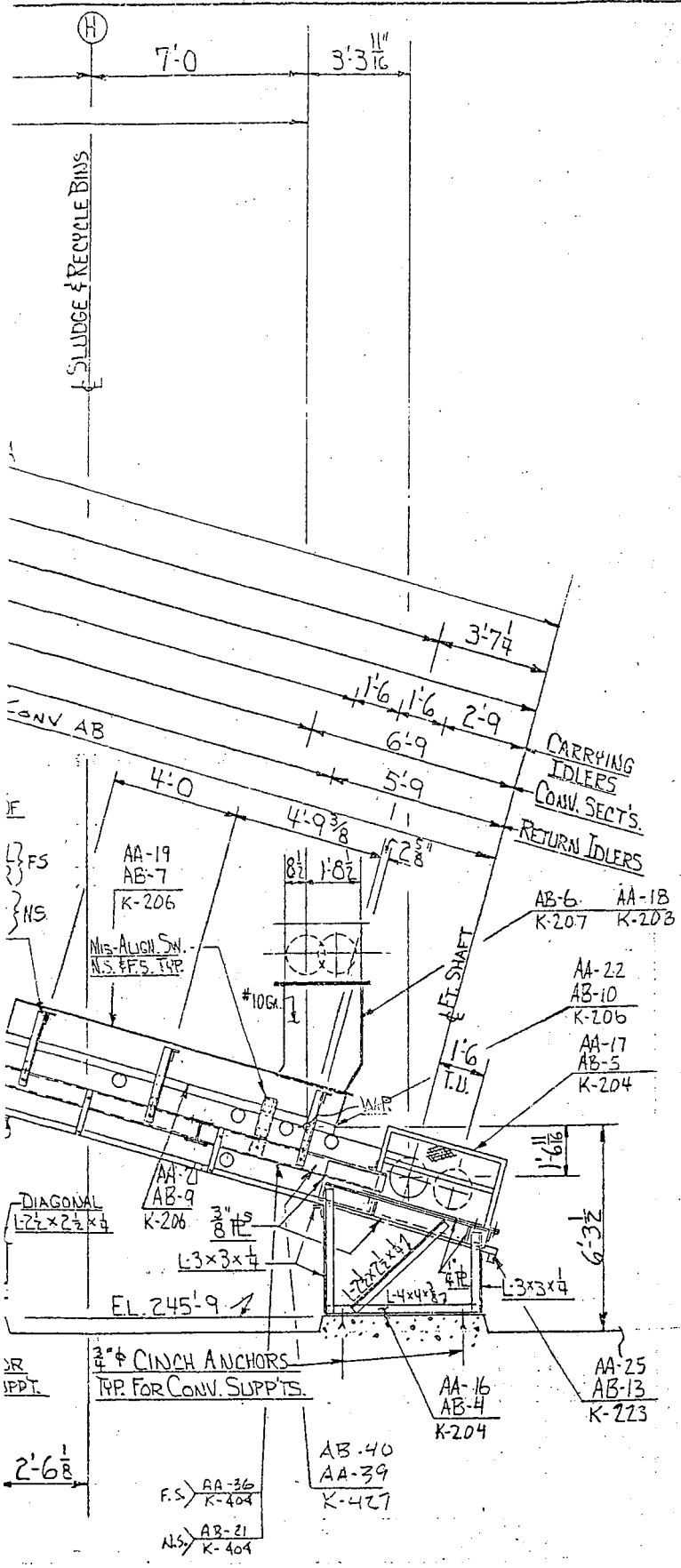
Maximum belt speed shall be 200 fpm.

Belt width shall be 30 in.

1.4 WORKMANSHIP AND DESIGN

Conveyors, covers, platforms, walkways, support structures and foundations shall be designed for all equipment and material dead and live loads. Outside conveyors shall be designed for 50 psf snow load plus 70 mph wind load. In addition, platforming and walkways their supports and foundations shall be designed for a 100 psf live load.

AA BIN DISCH CONV. (2)



ITEM "AA" & "AB"

TWO BELT CONV.'S 30" WIDE X 57'-9" LG.
BELT SPEED:
ITEM AA 135 FPM
(A) ITEM AB (TWO SPEED) 7.5 & 50 FPM
CAPACITY:
ITEM AA 31 TO 52 TPH OF 50 TO 70 PCF OF DEWATERED SLUDGE
ITEM AB 4.5 TO 52 TPH OF 15 TO 70 PCF OF DEWATERED SLUDGE OR CARBONACEOUS AMENDMENT

PM NO.	QUAN.	DESCRIPTION
PMAA-13	1	MOTOR - 5 HP, 1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 184T, TEFC
PMAB-13	1	MOTOR - 5 HP, 920/1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 184T, TEFC
PMAA-14	1	REDUCER - FOOTE-JONES, SHAFTMOUNT #7215H24 W/29.44 TO 1 RATIO, 29.8 RPM OUTPUT COMPLETE W/MOTORMOUNT, TORQUE ARM & BACKSTOP
PMAB-14	1	REDUCER - FOOT-JONES, SHAFTMOUNT #7215H24 W/24.44 TO 1 22.46 RPM OUTPUT COMPLETE W/MOTORMOUNT, TORQUE ARM & BACKSTOP
PMAA-15	1	DRIVE SHEAVE 4.6" P.D. 2 GROOVE FOR "B" BELTS
PMAA-16	1	DRIVEN SHEAVE 11.0" P.D. 2 GROOVE FOR "B" BELTS
PMAA-17	2	DRIVE BELTS (MATCHED SET) #B-68
PMAA-18	1	BELT GUARD
(A) PMAB-15	1	DRIVE SHEAVE 4.6" P.D. 2 GROOVE FOR "B" BELTS
(A) PMAB-16	1	DRIVEN SHEAVE 30.0" P.D. 2 GROOVE FOR "B" BELTS
(A) PMAB-17	2	DRIVE BELTS (MATCHED SET) #B-112
PMAB-18	1	BELT GUARD

"AA" HEAD SHAFT (29.8 RPM) 3-7/16" DIA.
"AB" HEAD SHAFT (22.46 RPM) 3-7/16" DIA.

PMAA-1, PMAB-1	2	HEAD PULLEYS, 16" DIA. X 32" LB. CF.W.S. W/COMPRESSION HUBS & 1/2" THICK HERRINGBONE LAGGING (REMOVEABLE)
PMAA-3, PMAB-3	2	3-7/16" DIA. BRG. - SKF MODEL SYR-307 EH PILLOW BLOCK HELD
PMAA-4, PMAB-4	2	3-7/16" DIA. BRG. - SKF MODEL SYR-307 E PILLOW BLOCK EXPANSION

TWO FOOT PULLEY SHAFTS 2-15/16" DIA.

PMAA-2, PMAB-2	2	FOOT PULLEYS - 14" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS
PMAA-5, PMAB-5	1	2-15/16" DIA. BRG. - SKF T.U. FRAMES W/PILLOW BLOCK HELD
PMAA-6, PMAB-6	2	2-15/16" DIA. BRG. - SKF T.U. FRAMES W/PILLOW BLOCK EXPANSION
PMAA-7, PMAB-7	2	ITEMS OF 30" WIDE B.F. GOODRICH BELTING FLEXSEAL HT-160, W/OIL SERVICE NEOPRENE COVERS, 2 PLY, WITH 1/8" THICK TOP COVERS, 1/16" THICK BOTTOM COVER X 120'-8" LG. VULCANIZED SPLICE FOR THE ABOVE BELTS (NOT BY F.E.CO.) IDLERS WILL BE REGROOVED AND WILL BE GREASED FROM ONE SIDE.
PMAA-9, PMAB-9	30	20 DEGREE TROUGHING IDLERS - MODEL C5200
(B)		
PMAA-10, PMAB-11	10	RETURN IDLERS - MODEL C5043 W/4-1/2" BRKT'S.
PMAA-12, PMAB-12	2	RETURN TRAINERS - MODEL C5056
	2	BELT WIPERS - DOUBLE BLADED, COUNTERWEIGHTED TYPE
PMAA-19, PMAB-19	2	ZERO SPEED SWITCHES (MODEL MS-L (CONV. COMPONENTS)
PMAA-20, PMAB-20	2	COUPLINGS - GERSING G-100 WITH COUPLING GUARD
PMAA-21, PMAB-21	2	SINGLE PULL EMERGENCY STOP SWITCH - MODEL RS-1 (CONV. COMPONENTS)
PMAA-22, PMAB-22	8	BELT MISALIGNMENT SWITCH - MODEL 6A-1 (CONV. COMPONENTS)

REF. DWG'S.

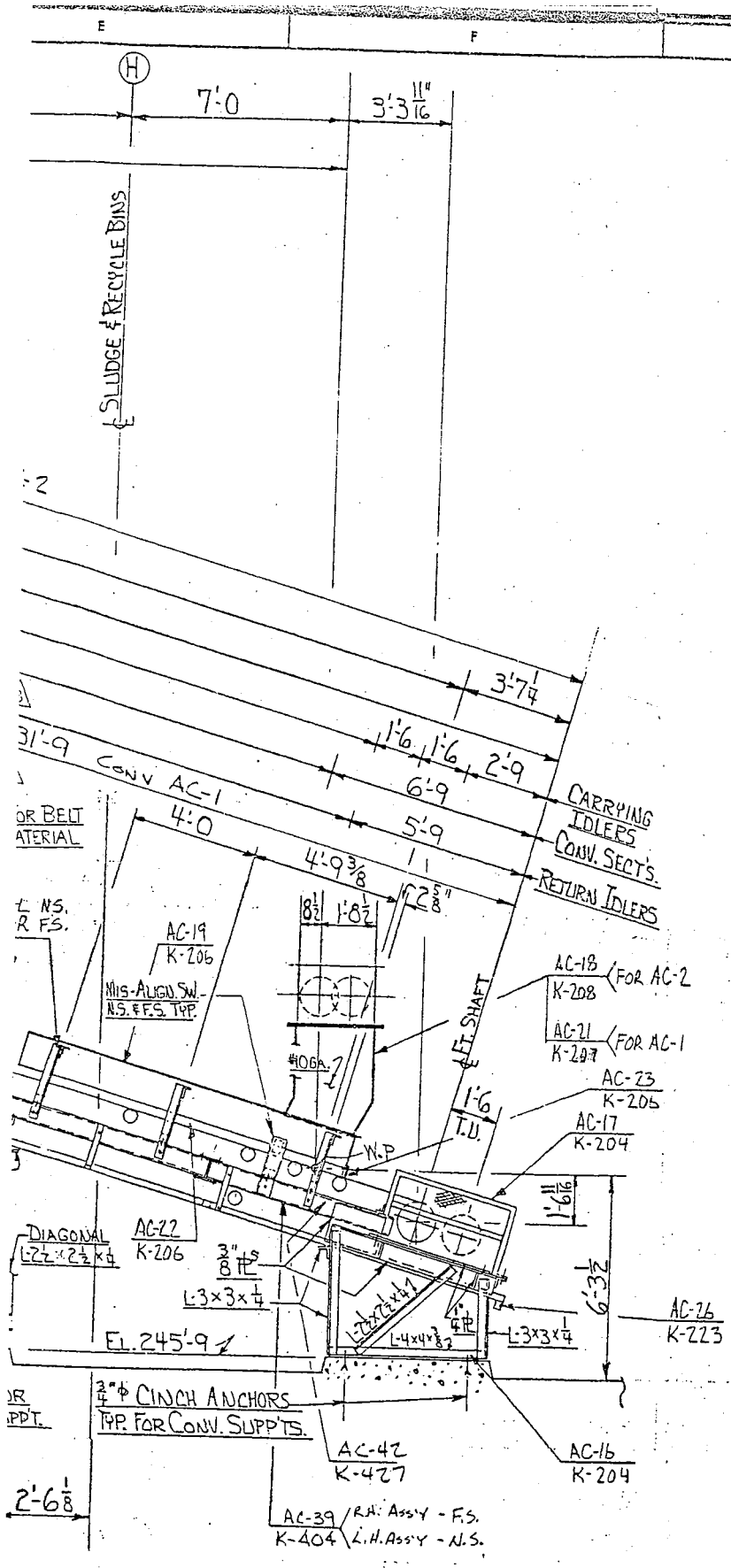
PLOT PLAN & GEN. NOTES K-1 & 33
CONV. SYSTEM ARRG'T. K-3
TYP. ARRG'T & DETAILS K-4 & K-5
FOUNDATION PLAN K-9

FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

	T SMITH	4-1-85
AB	T SMITH	1-14-85

THIS SCH. ARR. OF SLUDGE BIN DISCHARGE CONVEYORS CLIENT REV.

AC | BIN DISCHARGE CONV. (2)



ITEM "AC"

TWO BELT CONV.'S 30" WIDE X 57'-9" LG. (AC-1 & AC-2)
BELT SPEED:
ITEM AC-2 135 FPM
(A) ITEM AC-1 (TWO SPEED) 25 & 50 FPM
CAPACITY:
ITEM AC-2 30 TO 54 TPH OF 30 TO 45 PCF OF RECYCLED COMPOST
ITEM AC-1 4.5 TO 54 TPH OF 15 TO 45 PCF OF RECYCLED COMPOST OR CARBONACEOUS AMENDMENT

	PM NO.	QUAN.	DESCRIPTION
AC-2 →	PMAC-26	1	MOTOR - 5 HP, 1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 184T, TEFC
AC-1 →	PMAC-15	1	MOTOR - 5 HP, 900/1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 184T, TEFC
AC-2 →	PMAC-27	1	REDUCER - FOOTE-JONES, SHAFTMOUNT #7215H24 W/24.44 TO 1 RATIO, 29.8 RPM OUTPUT COMPLETE W/MOTORMOUNT, TORQUE ARM & BACKSTOP
AC-1 →	PMAC-16	1	REDUCER - FOOT-JONES, SHAFTMOUNT #7215H24 W/24.44 TO 1 22.46 RPM OUTPUT COMPLETE W/MOTORMOUNT, TORQUE ARM & BACKSTOP
AC-2 →	PMAC-28	1	DRIVE SHEAVE 4.6" P.D. 2 GROOVE FOR "B" BELTS
	PMAC-29	1	DRIVEN SHEAVE 11.8" P.D. 2 GROOVE FOR "B" BELTS
	PMAC-30	2	DRIVE BELTS (MATCHED SET) #B-68
	PMAC-31	1	BELT GUARD
AC-1 → (A)	PMAC-17	1	DRIVE SHEAVE 4.6" P.D. 2 GROOVE FOR "B" BELTS
	PMAC-18	1	DRIVEN SHEAVE 30.0" P.D. 2 GROOVE FOR "B" BELTS
	PMAC-19	2	DRIVE BELTS (MATCHED SET) #B-112
	PMAC-20	1	BELT GUARD

"AC-1" HEAD SHAFT (29.8 RPM) 3-7/16" DIA.
"AC-2" HEAD SHAFT (22.46 RPM) 3-7/16" DIA.

PMAC-1	2	HEAD PULLEYS, 16" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS & 1/2" THICK HERRINGBONE LAGGING (REMOVEABLE)
PMAC-3	2	3-7/16" DIA. BRG. - SKF MODEL SYR-307 EH PILLOW BLOCK HELD
PMAC-4	2	3-7/16" DIA. BRG. - SKF MODEL SYR-307 E PILLOW BLOCK EXPANSION

TWO FOOT PULLEY SHAFTS 2-15/16" DIA.

PMAC-2	2	FOOT PULLEYS - 14" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS
PMAC-5	1	2-15/16" DIA. BRG. - SKF T.U. FRAMES W/PILLOW BLOCK HELD
PMAC-6	2	2-15/16" DIA. BRG. - SKF T.U. FRAMES W/PILLOW BLOCK EXPANSION
PMAC-7	2	ITEMS OF 30" WIDE B.F. GOODRICH BELTING FLEXSEAL HT-160, W/OIL SERVICE NEOPRENE COVERS, 2 PLY, WITH 1/8" THICK TOP COVERS, 1/16" THICK BOTTOM COVER X 120'-0" LG. VULCANIZED SPLICE FOR THE ABOVE BELTS (NOT BY F.E.CO.) IDLERS WILL BE REXNORD AND WILL BE GREASED FROM ONE SIDE.
PMAC-9	30 (B)	20 DEGREE TROUGHING IDLERS - MODEL C5200
PMAC-12	10	RETURN IDLERS - MODEL C5043 W/4-1/2" BRKT'S.
PMAC-13 & 14-2	2	RETURN TRAINERS - MODEL C5056
	2	BELT WIPERS - DOUBLE BLADED, COUNTERWEIGHTED TYPE
PMAC-21	2	ZERO SPEED SWITCHES (MODEL MS-L (CONV. COMPONENTS)
PMAC-22	2	COUPLINGS - GERBING G-100 WITH COUPLING GUARD
PMAC-23	2	SINGLE PULL EMERGENCY STOP SWITCH - MODEL RS-1 (CONV. COMPONENTS)
PMAC-24	8	BELT MISALIGNMENT SWITCH - MODEL BA-1 (CONV. COMPONENTS)

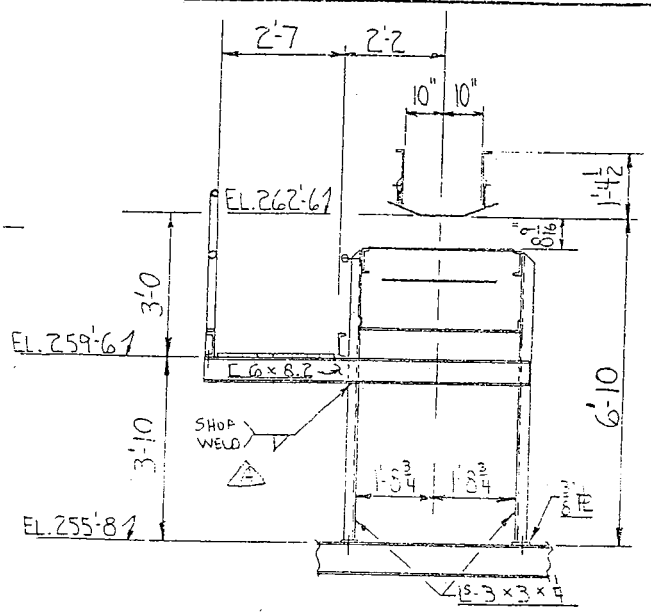
REF. DWG'S.

PLOT PLAN & GEN. NOTES	K-1 & 33
CONV. SYSTEM ARRG'T.	K-3
TYP. ARRG'T & DETAILS	K-4 & K-5
FOUNDATION PLAN	K-9

	T SMITH	4-16-85
B	T SMITH	1-14-85

FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY

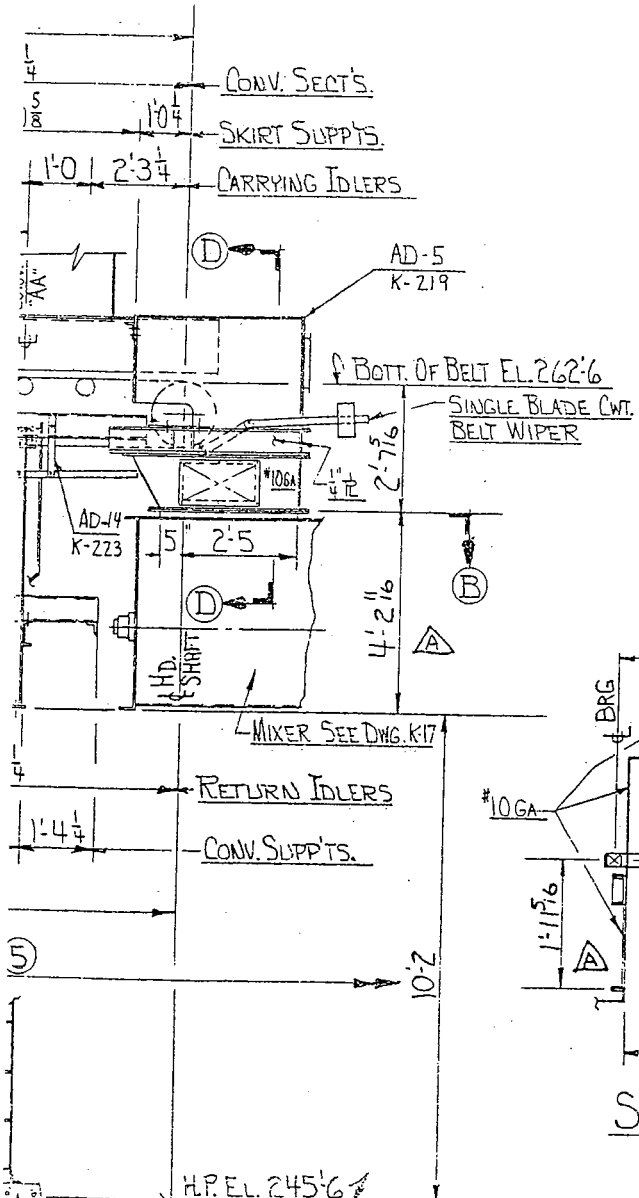
AD MIXER FEED CONV. (1)

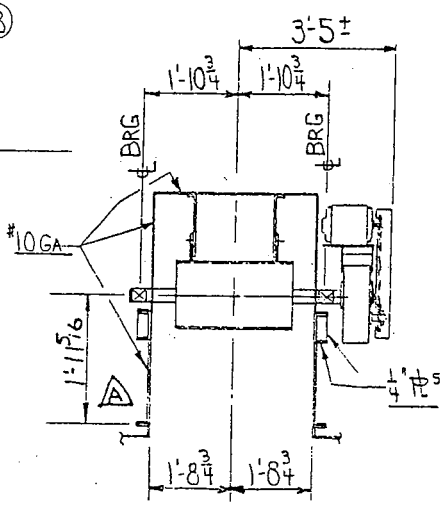


SECTION (C)

ITEM AD (MIXER FEED CONV.)
BELT CONV., REVERSING, 30" WIDE X 34'-6-1/2" LG.
SPEED 200 FPM, CAPACITY 135 TPH, MATERIAL, SLUDGE @54# PER CUBIC FOOT.

PM NO.	QUAN.	DESCRIPTION
PMAD-11	1	MOTOR - 5 HP, 1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 184T, TEFC
PMAD-12	1	REDUCER - FOOTE-JONES, SHAFTMOUNT #7207H25 W/24.75 TO 1 RATIO, 44.9 RPM OUTPUT COMPLETE W/MOTOR MOUNT AND TORQUE ARM
PMAD-13	1	DRIVE SHEAVE 6.0" P.D. 2 GROOVE FOR "B" BELTS
PMAD-14	1	DRIVEN SHEAVE 9.4" P.D. 2 GROOVE FOR "B" BELTS
PMAD-15	2	DRIVE BELTS (MATCHED SET) #B-60
PMAD-16	1	BELT GUARD
		HEAD SHAFT (44.9 RPM) 2-15/16" DIA.
PMAD-1	1	HEAD PULLEY 16" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS AND 1/2" THICK HERRINGBONE LAGGING (REMOVEABLE)
PMAD-3	1	2-15/16" DIA. BRG. SKF MODEL SYR-215 EH PILLOW BLOCK "HELD"
PMAD-4	1	2-15/16" DIA. BRG. SKF MODEL SYR-215 E PILLOW BLOCK "EXPANSION"
		FOOT PULLEY SHAFT 2-15/16" DIA.
PMAD-2	1	FOOT PULLEY 16" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS AND 1/2" THICK HERRINGBONE LAGGING (REMOVEABLE)
PMAD-5	1	2-15/16" DIA. BRG. SKF T.U. FRAME W/PILLOW BLOCK "HELD"
PMAD-6	1	2-15/16" DIA. BRG. SKF T.U. FRAME W/PILLOW BLOCK "EXPANSION"
PMAD-7	1	ITEM OF 30" WIDE B.F. GOODRICH BELTING FLEXSEAL-HT 160, W/OIL SERVICE NEOPRENE COVERS, 2 PLY, WITH 1/8" THICK TOP COVER, 1/16" THICK BOTTOM COVER X 75'-0" LG.
		VULCANIZED SPLICE FOR THE ABOVE BELT (NOT BY F.E.CO.)
		IDLERS WILL BE REXNORD AND WILL BE GREASE FROM ONE SIDE.
PMAD-9	14	20 DEGREE TROUGHING IDLERS MODEL CS200
PMAD-10	2	RETURN IDLERS MODEL CS043 W/4-1/2 BRKTS.
PMAD-22	1	SELF ALIGNING RETURN IDLER MODEL D6058
	2	BELT WIPERS. SINGLE BLADED, COUNTERWEIGHTED TYPE.
PMAD-17	1	ZERO SPEED SWITCH - MODEL MS-L (CONV. COMPONENTS)
PMAD-18	1	COUPLING - GERBING G-100 WITH COUPLING GUARD
PMAD-19	1	SINGLE PULL EMERGENCY STOP SWITCH - MODEL RS-1 (CONV. COMPONENTS)
PMAD-20	4	BELT MISALIGNMENT SWITCH MODEL BA-1 (CONV. COMPONENTS)





SECTION (D)

FOR FIELD USE	J SMITH	4-16-85
FOR DETAIL/FAB		1-14-85 1-15-85
FOR CUSTOMER APPROVAL		10-9-84
TYPE OF ISSUE	BY	DATE

REF. DWG'S.

PLOT PLAN & GEN. NOTES	K-1 & 33
CONV. SYSTEM ARR.	K-2 & K-3
TYP. ARR. DETAILS	K-4 & K-5

FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

TITLE: GENERAL ARRANGEMENT OF MIXER FEED CONVEYOR

CURR. REV.

BELT SCALES

a. Submission of manufacturer's specifications, catalog data, descriptive matter, illustrations, working drawings, etc.

b. Foundations, installation, and grouting.

c. Services of manufacturer's representative.

d. Operating instructions and parts list.

e. Lubricants.

f. Special tools.

g. Bolts, anchor bolts, and nuts.

h. Sleeves and inserts.

i. Equipment drive guards.

j. Nameplates.

11R.3 CONDITIONS OF SERVICE

The materials to be weighed will be dewatered sludge, carbonaceous amendment (e.g. sawdust, shredded bark, bark dust) and recycled compost. Material will weigh from approximately 15 lb. per cu. ft. to approximately 70 lb. per cu. ft. Moisture content of the sludge will vary from 74 to 80 percent. Moisture content of the carbonaceous amendment will be approximately 40 percent. Moisture content of the recycled compost will vary from 40 to 55 percent.

The material flow rate measurement range and belt travel rate for each belt conveyor scale are listed in the "Schedule of Belt Conveyor Scales" included herein. The accuracy of the scales shall be within 1 percent of full scale throughout the measurement range listed.

The belt width shall be 30 in.

11R.4 DESCRIPTION

The scales shall be of electronic-load cell type having infinite overload protection. They shall consist of a C-frame support for a double or quadruple suspended weigh idler, as specified under BELT TYPE CONVEYING EQUIPMENT, transmitter, all necessary switches, integrator, indicator unit, and summation unit. A digital belt travel pulser shall be provided and located near the point of load measurement to eliminate errors associated with belt stretch. Digital pulses shall assure continuous mass flow integration regardless of belt speed.

The instrumentation on the integrator panel for the weigh scales shall be arranged to totalize and indicate in consecutive hour the quantity of material fed to the mixer. A 6-digit

11R.7 SCHEDULE OF BELT CONVEYOR SCALES

Scale	Material(s) Handled	No. of Suspended Idlers	Material Measurement Rates (Range) Maximum TPH	Maximum CFH	Minimum TPH	Minimum CFH	Belt Speed (FPM)	
Sludge Receiving Bin No. 1 Discharge Conveyor Scale	Dewatered Sludge	2	52@ 70 pcf	1,500	31@ 50 pcf	1,200	75-125	
Sludge Receiving Bin No. 2 Discharge Conveyor Scale	Dewatered Sludge or Carbonaceous Amendment	4	52@ 70 pcf	1,500	4.5@ 15 pcf	590	75-100	(1)
Recycle Bin No.1 Discharge Conveyor Scale	Recycled Compost or Carbonaceous Amendment	4	54@ 45 pcf	2,400	4.5@ 15 pcf	590	75-100	(1)
Recycle Bin No. 2 Discharge Conveyor Scale	Recycled Compost	2	54@ 45 pcf	2,400	30@ 30 pcf	2,000	75-125	
Radial Stacker Feed Conveyor Scale	Compost*	2	135@ 45 pcf	5,500	25@ 30 pcf	1,700	150-200	

TPH= tons per hour
CFH= cubic feet per hour
FPM= feet per minute
pcf= lbs. per cubic foot
*Based on properties of recycled compost
(1)= With 2 idler stations to provide take-up necessary for specified scale accuracy at both

MIXER

14L.2 REQUIREMENTS OF GENERAL SPECIFICATIONS AND MISCELLANEOUS REQUIREMENTS

The Contractor's attention is directed to the requirements of the GENERAL SPECIFICATIONS and MISCELLANEOUS REQUIREMENTS in regard to:

a. Submission of manufacturer's specifications, catalog data, descriptive matter, illustrations, working drawings, etc., including complete motor data.

b. Foundations, installation, and grouting.

c. Services of manufacturer's representative.

d. Operating instructions and parts lists.

e. Lubricants.

f. Special tools.

g. Bolts, anchor bolts, and nuts.

h. Sleeves and inserts.

i. Electric motors.

j. Voltage rating of motors.

k. Equipment drive guards.

l. Nameplates.

14L.3 CONDITIONS OF SERVICE

The mixer will be used to mix dewatered sludge, carbonaceous amendment and recycled compost. All material will be added in continuous flows to a common inlet of the mixer.

The products are expected to be as follows:

Sludge

pH range	5 to 9 (7 normal)
Moisture Content	80 - 85%
Average Density	60 lb/cu. ft.
Design Feed Rate	31.0 ton/hr.

Carbonaceous Amendment

Average Moisture Content	40%
Average Density	20 lb/cu. ft.
Design Feed Rate	7.3 ton/hr.

Recycled Compost

Average Moisture Content	45%
Average Density	35 lb/cu. ft.
Design Feed Rate	31.0 ton/hr.

Mixture

Average Moisture Content	60%
Average Density	42.5 lbs./cu. ft.
Design Feed Rate	69.3 ton/hr.

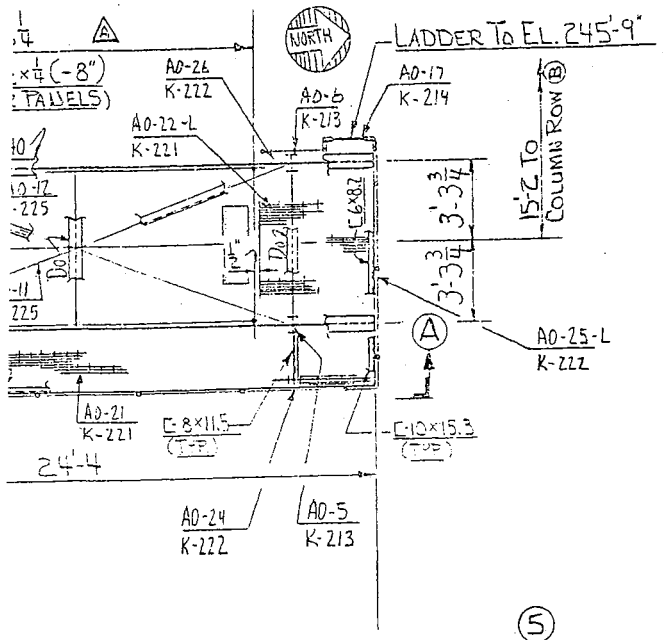
EQUIPMENT DESCRIPTION

The mixer shall be a double shaft mixer, with 36-inch outside diameter paddle agitators and 19-foot long mixer box. The mixer box shall have flanged top inlet and bottom outlet connections for attaching chutes, curved bottom section conforming to paddle contours and bolted and gasketed covers. Center cover sections shall have hinges and quick release fasteners to facilitate periodic cleaning and inspection. Sides and fixed bottom of mixer shall be fabricated from 1/4-inch 1020 carbon steel plate, ribbed and flanged for maximum stiffness and rigidity. End plates shall be 1/2-inch steel plate. The mixer shall be mounted on channels or legs as indicated on the drawings. The distance between centerlines of feed and discharge openings shall be a maximum of 17-feet 5-inches.

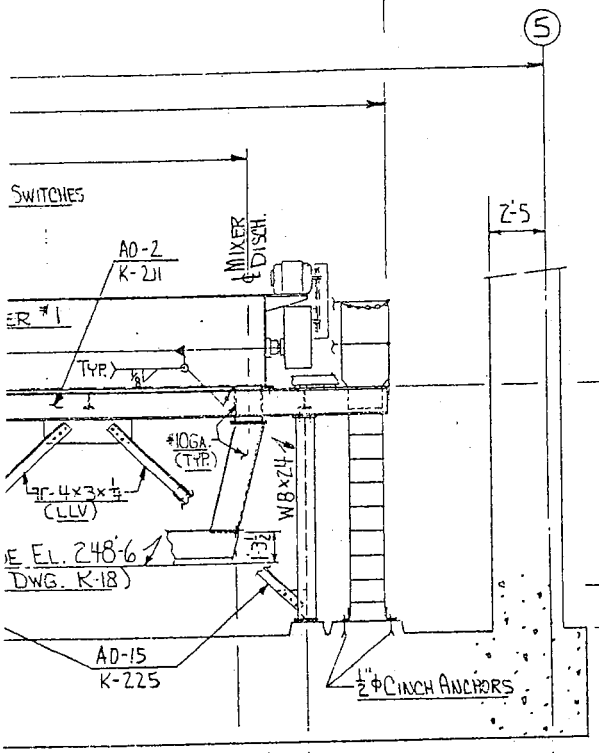
The paddle shafts shall be constructed of extra heavy steel pipe, 8-inch diameter, with renewable abrasion resistant bolt-on type screw flights or paddles at the feed end to start the material moving toward and through the mixing section. The paddle shafts shall be flanged at both ends and bolted to stub shafts to facilitate normal maintenance. The paddles shall be bolted-on type high carbon steel, heat treated to a Brinell Hardness of 600 to 650. The paddle bases shall be welded at the proper angle to the paddle shaft.

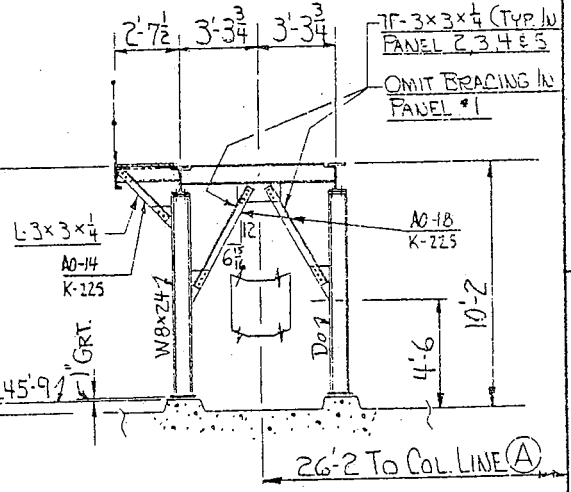
Anti-friction self-aligning roller bearings shall be used at both ends to support the paddle shaft. The bearings shall be mounted outboard with spiral ring seals to seal around the shaft where it passes through the mixer box. Seals shall be suitable to protect bearings from products being mixed and from wash down water.

MIXER (2)

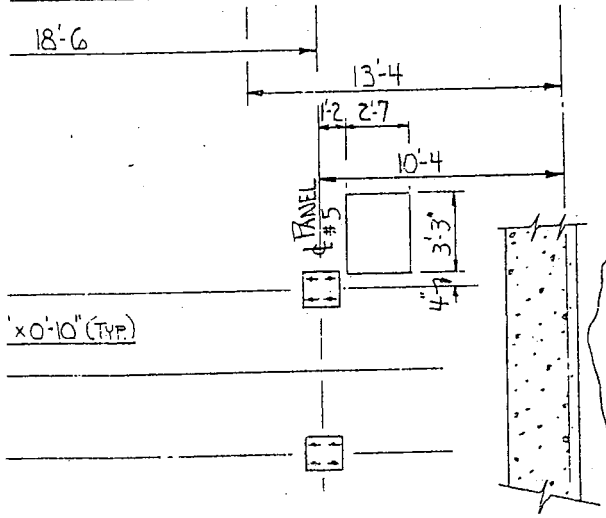


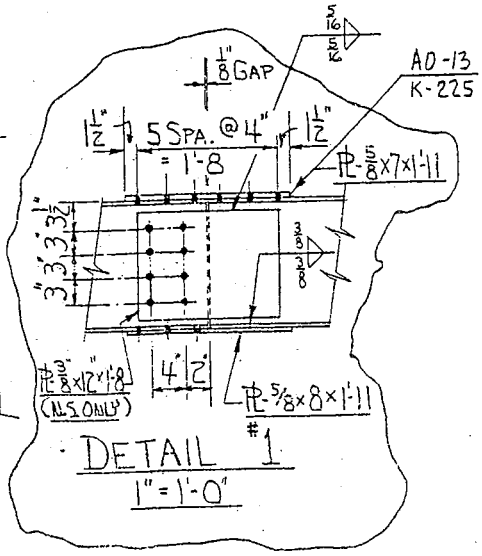
PMAO-1	2	MCLANAHAN 36" DIA. X 18'-0 LONG BLENDMASTER PUG MILL MIXER FABRICATED STEEL. MIXER BOX SHALL HAVE FLANGED TOP INLET AND FLANGED BOTTOM OUTLET CONNECTIONS FOR ATTACHING CHUTEWORK, CURVED BOTTOM SECTION CONFORMING TO PADDLE CONTOURS AND BOLTED AND GASKETED COVERS. HINGED COVER SECTION FOR ACCESS IN TOP. 1/4" STIFFENED SIDES AND 1/2" END PLATES. EXTRA HEAVY STEEL PADDLE SHAFT WITH ABRASION RESISTANT BOLT-ON TYPE PADDLES AT FEED END. PADDLE SHAFT TO BE FLANGED AT BOTH ENDS. MIN. OF TWO 20 HP MOTORS SHALL BE PROVIDED FOR EACH MIXER. 1800 RPM NEMA "C" TEFC MILL AND CHEMICAL DUTY 230/460V-3 PH-60 HZ MOTORS TO BE ABLE TO START MIXER FULLY LOADED. REDUCER AND V-BELTS TO HAVE A 1.5 SERVICE FACTOR. BELT GUARD TO BE PROVIDED TO MEET OSHA STANDARDS.
PMAO-2	4	CONV. COMPONENTS LOW SPEED SWITCH
PMAC-3	4	GERBING G-100 COUPLING
	4	COUPLING GUARDS





SECTION (C)





DETAIL #1
1" = 1'-0"

REF. DWG'S.

PLOT PLAN & GEN NOTES.	K-1 & 3
CONV. SYSTEM ARR.	K-2 & 3
TYP. ARR. DETAILS	K-4 & 5

FOUR-3/4" ϕ ANCHOR BOLTS W/ 3 1/2" PROJECTION ABOVE EL. 245'-9" (TYP. EACH OF TEN PADS)

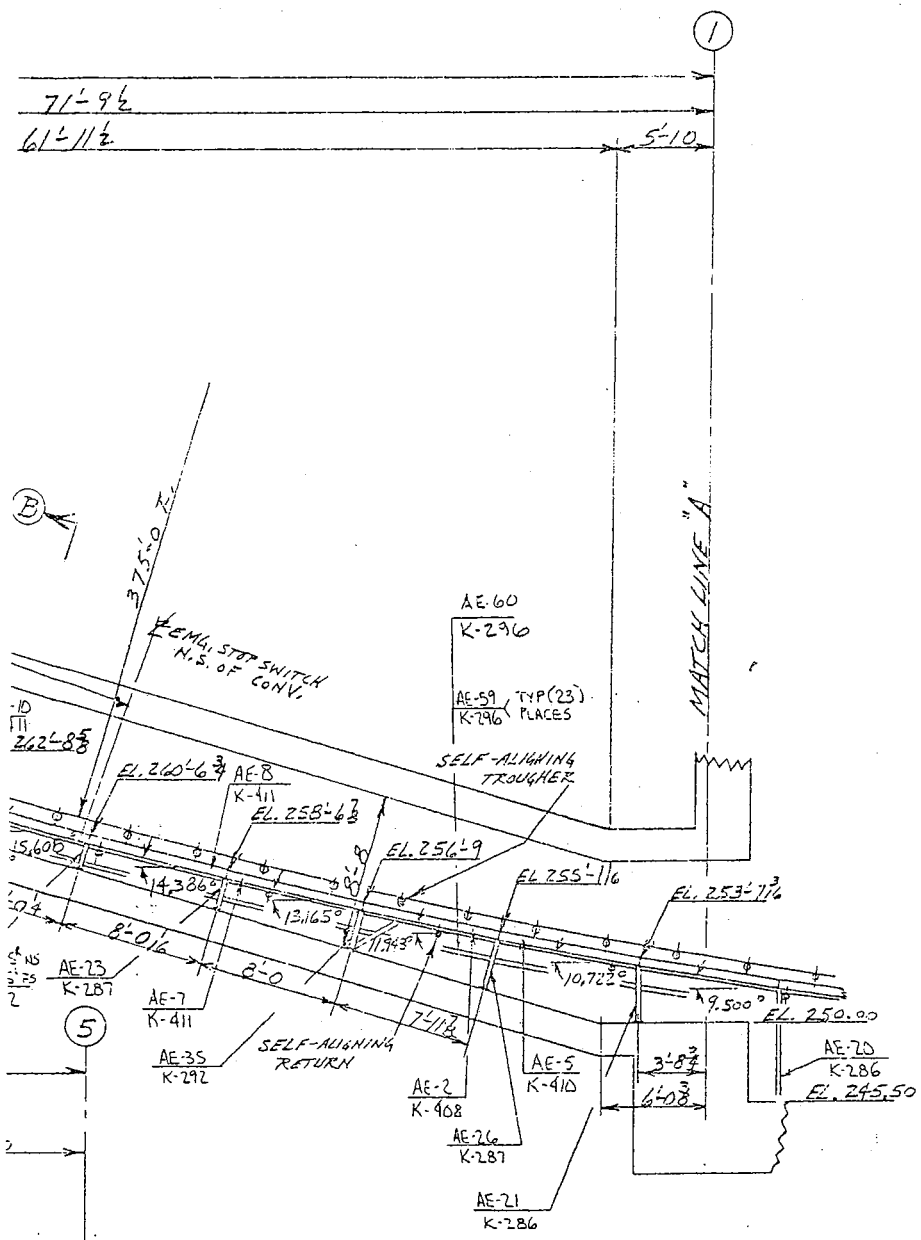
FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

THIS DRAWING AND ALL DESIGN AND DETAILS ON IT ARE THE

TITLE: GEN. ARR. OF MIXERS & PLATFORM STEEL

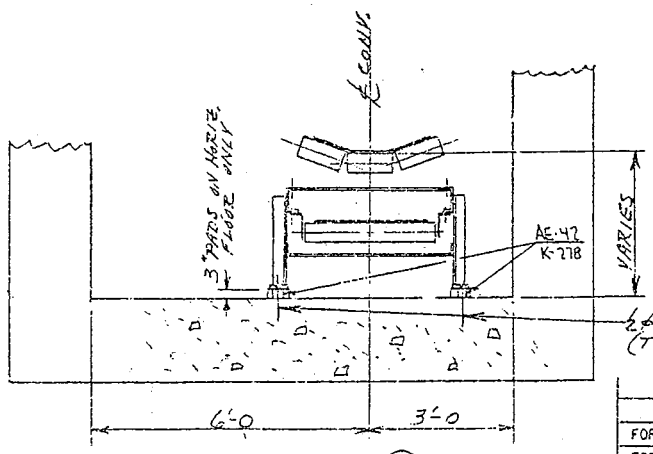
CURR. REV. A

E F G AE MIXER DISCHARGE CONV. (1)



ITEM AE
BELT CONV. 30" WIDE X 208'-5-3/4" LG.
SPEED 200 FPM, CAPACITY 135 TPH, MATERIAL, SLUDGE @54# PER CUBIC FOOT.

PM NO.	QUAN.	DESCRIPTION
PMAE-17	1	MOTOR - 15 HP, 1800 RPM, 230/460 VOLTS, 3 PHASE, 60 HZ, NEMA DESIGN B, FRAME 254T, TEFC
PMAE-18	1	REDUCER - FOOTE-JONES, SHAFTMOUNT #7307H25 W/25.46 TO 1 RATIO, 40.2 RPM OUTPUT COMPLETE W/MOTOR MOUNT AND TORQUE ARM & BACKSTOP
PMAE-19	1	DRIVE SHEAVE 11.8" P.D. 4 GROOVE FOR "B" BELTS
PMAE-20	1	DRIVEN SHEAVE 18.4" P.D. 4 GROOVE FOR "B" BELTS
PMAE-21	4	DRIVE BELTS (MATCHED SET) #B-97
PMAE-16	1	BELT GUARD
		HEAD SHAFT (40.2 RPM) 3-7/16" DIA.
PMAE-1	1	HEAD PULLEY 18" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS AND 1/2" THICK HERRINGBONE LAGGING (REMOVEABLE)
PMAE-5	1	3-7/16" DIA. BRG. SKF MODEL SYR-307 EH PILLOW BLOCK "HELD"
PMAE-6	1	3-7/16" DIA. BRG. SKF MODEL SYR-307 E PILLOW BLOCK "EXPANSION"
		BEND & G.T.U. SHAFT 2-15/16" DIA.
PMAE-3	3	BEND & G.T.U. PULLEYS 14" DIA. X 32" LG. C.F.W.S. W/COMPRESSION HUBS
PMAE-7	3	2-15/16" DIA. BRG. SKF MODEL SYR-215 EH PILLOW BLOCK "HELD"
PMAE-8	3	2-15/16" DIA. BRS. SKF MODEL SYR-215 E PILLOW BLOCK "EXPANSION"
		SNUB SHAFT 2-7/16" DIA.
PMAE-4	1	SNUB PULLEY 14" DIA. X 32" LG. C.F.W.S. W/COMPRESSION HUBS
PMAE-9	1	2-7/16" DIA. BRG. SKF MODEL SYR-207 EH PILLOW BLOCK "HELD"
PMAE-10	1	2-7/16" DIA. BRG. SKF MODEL SYR-207 E PILLOW BLOCK "EXPANSION"
		FOOT PULLEY SHAFT 3-7/16" DIA.
PMAE-2	1	FOOT PULLEY 14" DIA. X 32" LG. CF.W.S. W/COMPRESSION HUBS
PMAE-5	1	3-7/16" DIA. BRG. SKF MODEL SYR-307 EH W/PILLOW BLOCK "HELD"
PMAE-6	1	3-7/16" DIA. BRG. SKF MODEL SYR-307 E W/PILLOW BLOCK "EXPANSION"
PMAE-7	1	ITEM OF 30" WIDE 8.F. GOODRICH BELTING FLEXSEAL-HT 160, W/OIL SERVICE NEOPRENE COVERS, 2 PLY, WITH 1/8" THICK TOP COVER, 1/16" THICK BOTTOM COVER X 450'-0" LG.
		VULCANIZED SPLICE FOR THE ABOVE BELT (NOT BY F.E.CO.)
		IDLERS WILL BE REXNORD AND WILL BE GREASE FROM ONE SIDE.
PMAE-13	51	20 DEGREE TROUGHING IDLERS MODEL CS200
PMAE-14	3	20 DEGREE SELF-ALIGNING IDLERS MODEL CS212
PMAE-15	16	RETURN IDLERS MODEL CS013 W/4-1/2 BRKT'S.
PMAE-16	3	SELF-ALIGNING RETURN IDLERS MODEL CS056
	1	BELT WIPER SINGLE BLADED, COUNTERWEIGHTED TYPE.
PMAE-23	1	ZERO SPEED SWITCH - MODEL MS-L (CONV. COMPONENTS)
PMAE-24	1	COUPLING - GERBING G-1200 WITH COUPLING GUARD
PMAE-25	2	EMERGENCY STOP SWITCH - MODEL RS-1 (CONV. COMPONENTS)
PMAE-26	4	BELT MISALIGNMENT SWITCH MODEL BA-1 (CONV. COMPONENTS)



SECTION B
(SCALE ½"=1'-0)

REF. DWGS.

PLOT PLAN & GEN. NOTES	K-1
CONV. SYSTEM ARRG'T.	K-2
TYP. ARRG'T. DETAILS	K-2 E5
HEAD END ARRG'T.	K-19
G.T.U. ARRG'T.	K-19
ARRG'T. OF LOAD SKIRTS	K-29
CONCRETE PAD ARRG'T.	K-9

FOR FIELD USE	J SMITH	4-16-85
FOR DETAIL/FAB	J SMITH	4-18-85
FOR CUSTOMER APPROVAL	K Reynolds	10-9-85
TYPE OF ISSUE	BY	DATE

FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

TITLE: GENERAL ARRANGEMENT OF BELT CONVEYOR.

CURR. REV. A

ITEM LIST

ITEM	DESCRIPTION	CAP.	SPEED
AA	SLUDGE BIN #1 DISCHARGE CONVEYOR - 30" BELT	54 TPH	125 FPM
AB	SLUDGE BIN #2 DISCHARGE CONVEYOR - 30" BELT	54 TPH	125 FPM
AC-1 AC-2	RECYCLE BINS #1 & #2 DISC. CONVEYORS - 30" BELT	54 TPH	125 FPM
AD	MIXER FEED CONVEYOR - 36" BELT	135 TPH	200 FPM
AE	MIXER DISC. CONVEYOR 36" BELT	135 TPH	200 FPM
AF	DIGESTER FEED CONVEYOR	135 TPH	200 FPM
AH-1 AH-2	DIGESTER #1 & #2 DISCHARGE CONVEYORS - 36" BELTS	135 TPH	200 FPM
AI	RECYCLE CONVEYOR - 30" BELT	135 TPH	200 FPM
AJ	RECYCLE BIN FEED CONV. - 36" BELT	135 TPH	200 FPM
AK	RADIAL STACKER FEED CONVEYOR	135 TPH	200 FPM
AL	RADIAL STACKER - 36" BELT	135 TPH	200 FPM
AM	SPARE PARTS FOR BELT CONV'S.		
AN	WALKWAYS & HANDRAILS FOR CONV'S.		
AO	MIXERS		
AP	SLUDGE & RECYCLE LIVE BOTTOM BINS EA. W/9-12" DIA. SCREEN CONV'S. & TWIN 16" DIA. COLLECTOR SCREW CONV'S.	40 CU YD 54 TPH	
AR	HOISTS		
BA	BRIDGE ASSEMBLIES		
BB	BRIDGE SUPPORT PEDESTALS		
BC	AERATOR ASSEMBLIES		
BD	PROBE ASSEMBLIES		
BE	AIR SYSTEMS		
BF	DIGESTER BRIDGE CONVEYOR 36" BELTS	135 TPH	200 FPM
BG	DIGESTER SPARE PARTS		
CA	ELECTRICAL COMPOST SYSTEM		
CB	ELECTRICAL INSTRUMENTATION		
CC	GENERAL ITEMS		

DRAWING LIST

K-1		PLOT PLAN AND DRAWING INDEX
K-2		G.A. SECT'S OF EAST AND WEST TUNNELS
K-3		G.A. SECTIONS OF DIGESTER AND OPERATIONS BUILDING
K-4		G.A. TYP. CONVEYOR DETAILS
K-5		G.A. TYP. CONVEYOR DETAILS
K-6		G.A. TYP. CONVEYOR FOOT END DETAILS
K-7	AP	G.A. SLUDGE AND RECYCLE BINS
K-8	AP	G.A. SLUDGE AND RECYCLE BIN DETAILS
K-9		G.A. FOUNDATIONS FOR OPERATIONS BUILDING
K-10	AJ	G.A. RECYCLE BIN FEED CONVEYOR
K-11	AI	G.A. RECYCLE CONVEYOR FEEDING CONVEYOR ITEM "AJ"
K-12	AI	G.A. RECYCLE CONVEYOR HEAD END
K-13	AK	G.A. STACKER FEED CONVEYOR
K-14	AL	G.A. RADIAL STACKER CONVEYOR
K-15	AL	G.A. RADIAL STACKER CONVEYOR HEAD END
K-16	AD	G.A. MIXER FEED CONVEYOR
K-17	AO	G.A. MIXER AND PLATFORM SUPPORT STEEL
K-18	AE	G.A. MIXER DISCHARGE CONVEYOR
K-19	AE	G.A. MIXER DISCHARGE CONVEYOR DETAILS
K-20	AF	G.A. DIGESTER FEED CONVEYOR
K-21	AF	G.A. DIGESTER FEED CONVEYOR DETAILS
K-22	AH	G.A. DIGESTER No.1 DISCHARGE FEED CONVEYOR
K-23	AH	G.A. DIGESTER No.2 DISCHARGE FEED CONVEYOR
K-24	AH	G.A. DIGESTER DISCHARGE CONVEYOR HEAD END & FLOP GATE
K-25	AH	G.A. DIGESTER DISCHARGE CHUTE & CONVEYOR "AH" G.T.U.
K-26	AA	G.A. SLUDGE BIN DISCHARGE CONVEYORS
	AB	
K-27	AC	G.A. RECYCLE BIN DISCHARGE CONVEYORS
K-28	AA	G.A. DETAILS OF BIN DISCHARGE CONVEYORS
	AB	
	AC	
K-29	AE	G.A. CONVEYOR FOOT END & INTERMEDIATE LOAD SKIRTS
K-30	AF	G.A. DIGESTER FEED CONVEYOR PLATFORM
K-31	AR	G.A. HOISTS
K-32	AP	G.A. CROSS COLLECTING SCREW CONVEYOR
K-33		GENERAL NOTES
K-34		(Not Used)
K-35	BA	DIGESTER FLOOR PLAN
K-36	BA	G.A. DIGESTER PLOT PLAN AND NOTES
	BB	
	BC	
	BD	
	BE	
	BF	
K-37		(NOT USED)
	BB	
	BC	
	BD	
	BE	
	BF	
K-38	BD	G.A. DIGESTER OXYGEN AND TEMP. PROBES
K-39	BD	G.A. OXYGEN AND TEMP. PROBE DETAILS
K-40	BB	G.A. DIGESTER CENTER PEDESTAL DETAILS
K-41	BA	G.A. DIGESTER BRIDGE CONVEYOR DISCHARGE DETAILS
	BF	
K-42	BA	G.A. DIGESTER BRIDGE DRIVE END DETAILS
	BF	
K-43	BC	G.A. DIGESTER AERATOR ASSEMBLY
K-44	BE	G.A. DIGESTER AIR PIPING

(C) SEE DWG K-3

GENERAL NOTES:
1) WORK THIS DWG. W/ K-2 & K-3 / K-33

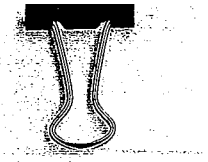
FAIRFIELD SERVICE COMPANY
SUBSIDIARY OF
THE FAIRFIELD ENGINEERING COMPANY
MARION, OHIO

USE	T. Smith	4-4-85
L/FAB	T. Smith	4/4/85
ER APPROVAL		

THIS DRAWING AND ALL DESIGN AND DETAILS ON IT ARE THE

TITLE: PLOT PLAN & DWG. INDEX

CUSTR. REV.



2005 N-VIRO
MIX DATA

Date: 3/13/2006

Memo to: J. Ruff, Environmental Manager
CC: Dave Powell, WPCP CPO
CC: Wfe files

From: W. Ellsworth, WPCP Chemist

Re: Nviro 2005 Data

Attached please find a copy of the Nviro Data from 2005 that we were able to assemble for the DEC 360 report due at the end of this month.

Joe picked up the information from the CCCF. Brenda inputted the data, a week long project and I processed the information into the summaries given on the pages below.

This summary does not include Plattsburgh Sludge, but we have our own records on that which will be prepared separately.

CCCF INPUTS FOR NVIRO Operation by Veolia Water 1/1/2005-6/30/2005

ITEM	AMOUNT		Estimated Percent	Estimated
	LBS	TONS	Solids	Dry tons
LIME	1834775	917	99	908
LIME KILN DUST	1699953	850	99	841
ASH	16534120	8267	99	8184
SLUDGES				
Springfield, Mass	22547030	11274	20	2255
Rotterdam, NY	788240	394	20	79
Marlborough, Mass	776880	388	20	78
Guilderland, NY	331740	166	20	33
Totals	24443890	12222		2444

CCCF NVIRO DISTRIBUTION By Veolia Water in 2005

NVIRO Distribution	59085	YD3

Appendix E – Daily Operations Log

DAILY DATA LOG

N-VIRO QUALITY CONTROL SHEET

Date:_____ Batch ID#:_____

Heat Pulse Location #:_____ Operator: _____

	Time: 0 Hours	Time: 8 Hours	Time: 12 Hours
Temperature Location 1			
Temperature Location 2			
Temperature Location 3			
Temperature Location 4			
Temperature Location 5			
pH, Composite			

N-VIRO SOIL BATCH FORM*

Date of Processing: _____

Wet Tons Processed: _____ tons

Incoming Sludge: _____ % Solids

Mixed Product _____ % Solids

Pile Location _____

Pile Moved: Date of Move _____, New Location: _____

Day	Date	Time	Temperature (deg C)	pH	% Solids
1					
2					
3					

Date of last shredding operation: _____

Date treatment finalized: _____

Date stockpiled (if stored on-site): _____

Date batch picked up and moved off-site: _____

Initials of technician certifying treatment complete and pick-up: _____

*Treatment requirements
Temperature > 52 deg C for at least 12 hours
pH > 12 for 72 hours
> 50 % solids

DAILY DATA LOG

Date:_____ Time _____ Time _____ Time _____

Temperature			
Raw Feed			
Heat Pulse Pile Output			
Feed Rates			
Live Bottom Bin			
Mixer Feed Rate, lb/hr			
Heat Pulse Load Out, lb/hr			
Admixture Feed Rate, lb/hr			
Admixture A			
Admixture B			
Admixture C			
Soil Shredder Settings			
Shredder Speed			
Output Texture			
Output Color			
Solids Balance			
Raw Feed Solids, % TS			
Blend, % TS			
Final Product, % TS			

NOTES:

FACILITY

Daily Report Form

Superintendent: _____

Date: _____

Weather Conditions:

Wind Direction and Speed (am) _____ (pm) _____

Temp. (am) _____ (pm) _____

Incoming Biosolids Inspection:

Temp. _____

pH _____

% Solids _____

Wet Tons Received per load: load #1 _____ load #2 _____ load #3 _____
load #4 _____ load #5 _____ load #6 _____
load #7 _____ load #8 _____ load #9 _____

Total Wet Tons _____

Inspected By _____

Processing Inspection:

	After Blending	After 12 hr. Heat Pulse
pH		
% Solids		

Wet Tons processed: _____

Actual Operating Time: _____

AA Source:

_____ _____ _____

Tons received load #1 _____ load #1 _____ load #1 _____
load #2 _____ load #2 _____ load #2 _____
load #3 _____ load #3 _____ load #3 _____

Total Tons Received: _____

General Remarks:

Appendix F – Odor Complaint Form

ODOR COMPLAINT FORM

PLATTSBURGH COMPOST FACILITY

Date: _____ Name of investigator: _____

Location: _____

Person filing complaint: _____ Date/Time of Complaint _____

Address: _____

Phone number: _____

Nature of Complaint: _____

INVESTIGATION

Date and time of investigation: _____

Wind Direction, Speed and Temperature _____

Description and identification of odor:

Strength of Odor	*Description of Odor*
1. _____No Odor	1. _____Musty
2. _____Faint	2. _____Skunk
3. _____Noticeable	3. _____Fecal
4. _____Definite	4. _____Fishy
5. _____Strong	5. _____Rotten Egg
6. _____Overwhelmingly strong	6. _____Other

Actions Taken and explanation to caller: _____

_____

_____

_____

_____

Project Manager notification and follow- up actions: _____

_____

_____

_____

_____

Odor Detection Report Completed By: _____ Date: _____

Reviewed by: _____ Date: _____

(Project Manager)

Appendix G – Marketing and Distribution Plan

PRODUCT INFORMATION SHEET APRIL 25, 2007

Product Generator: City of Plattsburgh. Detailed data can be obtained by calling 563-7172.

This product was manufactured using municipal sewage sludge and a combination of combustion ash (wood or coal), lime kiln dust, and/or quick lime. The process used is Alkaline Treatment and is approved by US EPA and NYSDEC. The process raises the pH to greater than 12, the temperature to greater than 131 deg F for at least 12 hours, and lowers the moisture content to less than 50%. This results in a product that has reduced pathogens to safe levels, reduced its attraction to vectors, and allows it to be handled with conventional soil handling equipment.

The metal and nutrient content can vary but averages as follows:

Metal	Average, mg/kg
Chromium	35
Cadmium	3
Copper	450
Nickel	12
Lead	35
Zinc	400
Mercury	1
Arsenic	3
Selenium	4
Molybdenum	12
Phosphorus	
Nitrogen	
Potasssium	

This product is considered to be a soil amendment. Product uses and benefits include:

- Increased soil organic matter
- Soil pH adjustment
- Macro/micro nutrients such as phosphorus, nitrogen, potassium, copper and zinc
- Top soil manufacturing
- Horticulture (flowers and plants) and silviculture (trees/forestry)
- Landscaping
- Land reclamation

Application rates vary depending upon the intended use and existing soil conditions. Top soil blenders have had success at mix ratios of product to sand/soil ranging from 1:2 to 2:1. Agricultural application rates have ranged from 3 to 15 tons pre acre.Greater rates have been used in applications where there is little or no organic matter in the native soil.

PLATTSBURGH PRODUCT MARKETING AND MANAGEMENT PLAN

APRIL 2006

Over the years, the Clinton County Compost Facility has distributed in excess of 200,000 tons of product to a customer base of farms, nurseries, greenhouses, sod farms, topsoil manufactures, landscape contractors, municipalities and others. This success has been due to customer satisfaction with the beneficial results.

It is expected that the product will continue to provide value as both a less costly alternative to standard agricultural lime and as a valuable component that adds tilth and base nutrients to enhance the long term sustainability of the North Country's soils.

The use of similar product by customers has provided:

- A significant increase in the acres of acidic farmland brought back to a productive pH range through soil conditioning;
- An increase in productivity from its direct use on agricultural (corn, soybean, hay) and horticultural crops (annuals, perennials, nursery stock);
- A replacement product that may be utilized in the manufacture of high value topsoil;
- A less costly alternative to agricultural liming products that supplies the same level of pH adjustment as "standard" liming agents;
- A decrease in the use of chemical fertilizers; and *most importantly*,
- A decrease in operating costs for both growers and residuals generators.

On account of verifiable results of increased crop yields, the vast majority of customers are repeat customers.

Similar product is produced in many facilities in the world. Similar product generating facilities are located in every region in the United State and has been introduced into a wide range of product markets.

As a result of widespread product use throughout the country and the Northeast as a liming agent, soil conditioner and/or soil amendment, it is a widely accepted process and product.

Resources Committed to Marketing Final Product

The majority of the product already been requested by customers based upon projected volumes of the final product ranging from 20,000 to 40,000 tons per year. City staff are expected to manage the program. Two dump trailers that can be used for hauling product have been purchased. Additional resources will be provided if necessary.

Institute a Quality Assurance Program

Regular admixture and product testing prior to releasing the products to market assured product quality and safety. Testing will be conducted on a weekly and/or monthly basis by an appropriate laboratory.

Product Use and Characteristics

Proper management of soil fertility will yield economic gains as well as reduce environmental problems. Use of the product can eliminate a grower's agricultural lime requirements. When used in conjunction with good corp. rotation practices and manure management, supplemental fertilizers may be reduced as well.

The product can be considered a "flexible soil amendment," thereby, providing multiple advantages to the grower, including:

- Pathogen free, stable, easy to store, easy to handle and apply;
- Used in agriculture as an ag-lime, fertilizer, soil conditioner;
- Used in horticulture as a soil conditioner;
- Aged or blended with other materials to make a manufactured topsoil;
- Mixed with yard waste or paper sludge to accelerate composting to 30-50 days instead of 9-12 months;
- Immobilizes trace elements by co-precipitation with calcium phosphates and silicates;
- Slows the release of nitrogen and phosphorous and reduces water loss potential; and
- High soluble calcium promotes subsurface liming.

Lime Value

The Product application rate can be based on soil lime and crop nitrogen requirements. In New York State for example, the lime value of material is expressed as effective neutralized value (ENV). This system is based on the total neutralizing value and the fineness of the material. Fine ground lime will dissolve into the soil matrix relatively quickly, raising the soil pH to the target value within a few months. Coarse limestone rock or pebbles, with their relatively small surface area, do not react with the soil for many years and are therefore

not effective. The particle size of the product is much finer than many agricultural limestone's, thus reacts to adjust pH quickly. Research has shown that soil neutralization is completed within one month of application.

The total neutralizing capacity of a lime material is measured by a chemical test, yielding a percentage value of pure calcium carbonate. Material that is finer than a 100 sieve (about 6/1000 inch) does not contribute at all to the ENV since the particle takes too long to dissolve in the soil. The particle size analysis is based on individual particles, not clumps of material held together by moisture or freezing.

Fresh product has a pH of 12 or higher, due to the presence of calcium hydroxide. When expose to air and soil the material quickly "carbonate," or reacts with carbon dioxide, to form calcium carbonate. When spread on soil this reaction occurs within minutes. Once the material reaches this state, the pH will be buffered to around 7.8 to 8.2, and therefore will not "burn" established crops at recommended application rates.

The recommended lime rate is based on initial soil pH, texture, and a target pH of 7.0.

Methods used by the Cornell Soil Testing program are more exact, and considers soil pH with either exchange acidity or cation exchanger capacity. IF the Cornell Soil Testing Program is employed, the soil test report lime recommendation will be based on 100% ENV limestone. To calculate for the lower ENV of product, simply divide by the actual product ENV. For example, for a lime recommendation of 2.0 tons per acres of 100% ENV limestone, a substitution of N-Viro Soil with an ENV of 34% would be as follows:

$$\frac{\text{2.0 tons/acre of 100\% ENV}}{0.34} = \text{5.9 tons/acre of 34\% ENV}$$

Use this application rate when comparing the cost of N-Viro Soil to that of competing lime products.

Loading above the lime limit will increase pH to above 7.0. This will not be a problem with many grass crops and may, in fact, be beneficial to some. Loading above the lime limit should not be done, however, without approval of our staff and consultation with your local Extension Service or other reputable agronomist. The type of fields eligible for consideration includes those with adequate separation from sensitive areas and shallow slopes. In any case, never apply at rates above the crops' nitrogen requirement.

Nitrogen Value

The characteristics of nitrogen supplied from the product are slightly different than those of manures. The nitrogen in the product is almost entirely organic, with only minor percentages of nitrate and nitrite. Ammonia nitrogen is volatile at the elevated pH associated with the process, and nearly all is lost by the time processing completed and material is delivered and spread.

Research on the nutrient availability of similar products suggests that approximately 20% of the nitrogen is available during the first year. Organic N decomposes to nitrate, a water soluble form that can be utilized by plants. Continued mineralization of the organic component results in continued availability of about 5% annually in subsequent years.

The product can be used as a cost effective substitute for lime and the nitrogen value should be counted towards the total requirement of the crop to be grown.

As an example, a soil test report from the Cornell University recommends 70#/acre of N be applied and 3 tons per acre of 100% ENV lime. Based on a product FNV of 34%, 8.8 tons/acre of N-Viro Soil is needed to obtain the correct pH. With a guaranteed available nitrogen content of 2.7 #1 ton, however, only 24 pounds per acre of N would be available from N-Viro Soil. It is correct to limit the N-Viro Soil use to 8.8 tons/acre and supplement the 70 – 24 = 46 #N with manure or chemical fertilizer.

Phosphorus

Phosphorus in N-Viro Soil is reported as P_2O_5 (phosphoric acid). This is the second number in the N-P-K analysis required on all fertilizer labels. Testing has shown that 50% of the total P in N-Viro Soil is available to crops.

By using the above example of 8.8 tons/acre of product and available product concentration of 1.0#/ton, it can be estimated that 8.8 #/acre of P is available to crops. This may not be enough to prevent a deficiency in low soil test P fields, in which case a supplemental phosphorus fertilizer may be needed.

Potassium

Potassium in the product is reported as K_2O (soluble potash). The alkaline admixture contributes nearly all of the potash. This is the third number in the N-P-K analysis required on all fertilizer labels. Testing has shown that 100% of the total K in N-Viro Soil is available to crops. By using the above example of 8.8 tons/acre of N-Viro Soil and a product concentration of 4.0#/ton it can be estimated that 35 #/acre of K is available to crops.

Trace Nutrients

The product will contain trace elements, including nickel, copper and zinc, as well as calcium and magnesium. All of these components are beneficial to plant growth in the appropriate concentrations. In New York and Vermont soils, trace nutrients are rarely limiting.

Depending on the source of the alkaline admixture, the magnesium content of the product may vary widely. Many high calcium admixtures will not supply enough magnesium to offset natural soil deficiencies.

Specific Target Markets

Planned markets include Agricultural Application, Horticultural Application(s), topsoil (Loam) Production, Sod Farms, Landfill Cover, site reclamation and Exporting/Other. Regional markets commence within 5 miles of the CCCF facility and will extend to an area generally within a 100-mile radius of the facility.

Agricultural Application

Growers may comprise as much as 60% of the potential market for the product in the market area. Used as an alternative to agricultural lime for conditioning and raising the pH of cropland, the product is safe, simple to handle and easy to spread.

Horticultural Application

The horticultural market is more specialized than direct farm application; however, it can be the most lucrative. In most horticultural applications, the product is blended with other horticultural products (potting and planting mix(s), peat moss, compost, perlite, vermiculite, etc.) to develop a custom blend depending on the specific application. Typically, the grower (greenhouse and/or nursery stock) will blend the product on-site with other material and have it analyzed for nutrients organic matter and pH.

Topsoil (Loam) Production

Topsoil manufacturing can be a large market for the product and will be a main focus in the marketing of the CCCF material. With the depletion of high organic soils throughout the Northeast as development expanded over the last thirty (30) years, there is an enormous demand for organic soils to be added to the poor soil that remains. The majority of topsoil being marketed today is manufactured with a variety of soil and non-soil based products.

The addition of the product to a poor soil increases the organic matter content, provides slow-releasing nutrients, and enhances the pH, thereby improving the vegetative growth of the "synthetic" topsoil,

In addition, there has been research and development for utilizing paper sludge with the product to create a marketable topsoil. This method of creating a more valuable topsoil with acceptable markets saves landfill space and guarantees consistent product removal.

Landfill Cover

The material, with its soil like characteristics, handles and applies like topsoil or other natural material used as daily cover. As important as natural soils and clays are to the construction of the landfill liner systems, their use as daily cover is expensive and undesirable. The product is an inexpensive alternative, which meets State and Federal requirements as daily and intermediate cover materials. Plattsburgh can deliver the material directly to the working ace without the need for excavation.

A relatively new application and potentially large volume market is the use of similar product in the construction of landfill capping systems. Used as the barrier protection layer of the final cap, volumes of up to 4000 tons per acre could be employed.

Other

There has been successful experience in working with municipal officials and state agencies such as the Department of Transportation (DOT), the State Parks and Recreation, State Services and Purchasing Departments, etc., to provide similar product for state projects and recommendations for use. Municipal and State areas, parks, highway departments, spoiled lands such as sand/gravel pits, landfills, and any other State agency maintained ground, can all benefit from the utilization of this product.

Quality Assurance/Quality Control Including Product

Quality assurance/Quality Control is a paramount importance. It starts with the complete testing and absolute assurance that all raw materials going into the final product, sludge and admixtures, met all regulatory requirements and product standards for quality and consistency. By closely monitoring the raw materials and the mixing and handling processes, and by maintaining a safe buffer from any and all cross contaminations, the product offers the end user the highest quality product with a consistent nutrient and handling characteristic profile. Every precaution is taken to product the highest grade material possible.

In the event that unacceptable contamination of a day's production does occur, redundant record keeping programs enable earth Blends to remove said production and to provide for its off-site disposal rather than distribution.

End Users

Since 1998, similar products has been marketed to growers for use on hay, alfalfa, and corn. Multiple year yield data from the resulting harvests has shown that the farms using similar products are enjoying crop yields of up to 15% over previous year's production on the same fields. It is undoubtedly this sustained improvement in productivity that is responsible for the "work of mouth" marketing from satisfied customers.

Application Rates

The application rate for this product is dependent upon many factors and will differ in accordance with the specific product recipe and the condition, type, and pH of the soil. Each customer will determine the optimal application rate, considering factors such as crop rotation and an overall program.

Flexibility to Met Changing Market Demands

One of the greatest values of this product is the ability to be tailored to meet localized and changing market demands. This characteristic improves the likelihood a viable long term marketing program.

Generally, regional growers in the acid rain affected areas of the Northeast use similar product for its high effective neutralizing value (ENV), which allows it to substitute for a semi-annual application of agricultural lime used for pH maintenance. This product is utilized for pH adjustment because it is less expensive than lime. It is also more beneficial than standard lime because it can be mixed with other materials such as leaf/yard waste streams to provide products with a buffered lime value. These buffered products can be made into top soils and otherwise can be used to provide more effective soil neutralization. Finally, similar product is superior to lime because as an amendment, unlike lime, it adds organic matter and granularity to soil.

Although not marketed or sold as a "fertilizer", this product does have small quantities of major nutrients such as Nitrogen, Phosphoric Acid, Soluble Potash and Sulfur. These nutrients, are in slow release forms, act as a vitamin pill to help rebuild the depleted soil matrix and are an added bonus the grower receives from this product when used in-lieu of other lime products. These additional nutrients contribute to documented and verifiable crop yield increases and the decreases in the addition of supplemental fertilizers. The end result is lower input costs and grater product yields.

Product Storage

Product storage is another benefit of this product. The ability to store this product without causing an off-site nuisance and/or environmental condition, not only improves product quality, rather it is a necessary component to a successful distribution program. Long-term storage under a roof is something used but outside storage has no adverse effect on the product or the environment.

When properly stored, this product has a natural tendency to shed water, which minimizes erosion and material run-off. Also, research on similar products show that it contains low concentrations of water-soluble chemical constituents, with low probability for runoff and leaching.

We recognize two types of storage for this product: Short-term and Long-term. Short-term storage is typically located on an end-users property (i.e. farm or soil manufacturing facility) and usually is on-site prior to use for less than one (1) year. An example is a farmer who purchases product in the Spring and spreads it in the fall.

Long-term storage sites are dedicated sites where product may be stored for 1-2 years. Long-term storage facility's can affect the sale and distribution of product because it provides flexibility in the supply and demand of product. These sites are typically not located at an end-users site and are at the operation site or in industrial or agricultural areas where truck traffic and noise are usually not issues.

All product when delivered to a end-user, short-term storage and/or long-term storage site should follow standard Best Management Practices for storage. All material is stored away from waterways, property lines and from neighbors as good environmental practice and to reduce even the perception of a nuisance condition. All material is stacked up right in a cone shape or windrow fashion in order to shed water. Proper drainage away from the storage pile is necessary to help prevent against ponding around the pile.

The benefit of this process is that is kills odor-causing pathogens and bacteria and neutralizes organics, without harming beneficial micro-flora. As a result, this product creates little off-site odor when stored, even if it gets wet, unlike compost, pellets and dried sludge.

Appendix H – Potential Alkaline Admixture Sources

MEMORANDUM

To: John Ruff

From: Tim Nicholson

Date: May 22, 2000

Subject: Question 8 from the letter of the DEC

The following Alkaline Admixtures (lime kiln dust, coal and wood ash) are being considered for the N-Viro Soil Project in Plattsburg:

1. Graymont; Bedford Facility, Lime Kiln Dust – Bedford, Quebec
2. Graymont; Joliette Facility, Lime Kiln Dust – Joliette, Quebec
3. Graymont; Marbleton Facility, Lime Kiln Dust – Marbleton, Quebec
4. Holyoke Water and Power Company; Mt. Tom Station, Coal Fly Ash – Holyoke, MA
5. NRG Energy; Somerset Operations Inc, Coal Fly Ash – Somerset MA
6. Boralex; Chateaugay Power Station, Wood Ash – Chateaugay, NY

Enclosed you will find analytical data from all of these facilities. I am still awaiting some analyticals from Graymont and our labs for the metals. I should have these no latter than Friday. I only have one incomplete test from the Boralex facility. They currently only have wet unloading for their ash, but we are in negotiations to convert them to dry unloading. The one test that we do have show that the usual metals of concern (especially Arsenic) are fine. I would recommend that you specify the top five materials, but leave room for if other materials are found that testing shows meet the 360 requirements, they can be added to the permit. It has been our experience that once a N-Viro facility is up and running, the generators of these types of materials will find a way to make there materials available to you. (i.e. Putting in dry unloaders for their ash).

26/10/98

Lime Kiln Dust

Plant	Kiln	CaO tot. (%)	CaO avail. (%)	MgO (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	MnO (%)	P_2O_5 (%)	K_2O (%)	Na_2O (%)	Insolubles (%)	S (%)	CCE (%)	C tot (%)	LOI (%)
Bedford	1	50.1	18.1	0.8	16.4	7.8	1.9	0.01	0.08	1.7	0.2	19.1	3.0	77.4	1.81	14.4
Joliette	2	51.1	31.8	0.7	10.5	5.0	1.1	0.03	0.24	0.9	0.3	11.7	2.8	88.8	9.8	24.6
	3	50.9	13.0	0.7	6.8	2.9	0.7	0.03	0.26	0.6	0.2	7.1	0.8	90.6	12.8	35.4
Marbleton	1	59.4	19.4	0.7	2.8	0.6	0.2	0.01	0.02	0.2	0.1	3.1	0.1	106.3	9.0	35.2
	2	61.0	34.3	0.7	0.1	2.5	0.8	0.01	0.07	0.7	0.1	10.8	3.4	99.8	4.4	16.9

NOTE : JOLIETTE KILN #2 : NOT ALWAYS IN PRODUCTION.

DAILY PRODUCTION (APPROX) :

1- BEDFORD : 30 METRIC TONS. → OK FOR PNEUMATIC.

2- JOLIETTE : 40 METRIC TONS (KILN #3) ← NO PNEUMATIC LOADING AREA.

3- MARBLETON : 40 METRIC TONS (KILN #2) ← OK FOR PNEUMATIC

10 METRIC TONS (KILN #1) ← NO PNEUMATIC.

TOTAL 120 METRIC TONS.

Hazen Research, Inc.
4601 Indiana St. • Golden, CO 80403
Tel: (303) 279-4501
Fax: (303) 278-1528

Date November 2 2000
HRI Project 009-387
HRI Series No. J448/00
Date Rec'd. 10/30/00
Cust. P.O.#

Boralex Chateaugay, Inc.
Tony Hariniak
7019 State Route 374
Chateaugay, New York 12920

Sample Identification
Wood Sample 07/01/00 thru 09/30/00

Reporting Basis >	As Rec'd	Dry	Air Dry
Proximate (%)			
Moisture	43.99		
Ash	1.72	0.00	1.93
Volatile		3.07	3.01
Fixed C			
Total			
Sulfur	0.02	0.04	0.04
Btu/lb (HHV)	4804	8577	8411
MMF Btu/lb	4894	8871	
MAF Btu/lb		8848	
Air Dry Loss (%)	42.89		
Ultimate (%)			
Moisture			
Carbon			
Hydrogen			
Nitrogen			
Sulfur			
Ash			
Oxygen*			
Total			
Chlorine**			
Forms of Sulfur (as S,%)			
Sulfate			
Pyritic			
Organic			
Total	0.02	0.04	
Water Soluble Alkalies (%)			
Na2O			
K2O			

Lb. Alkali/MM Btu=
Lb. Ash/MM Btu= 3.58
Lb. SO2/MM Btu= 0.10
HGI= @ % Moisture
As Rec'd. Sp.Gr.=
Free Swelling Index=

Report Prepared By:

Gerard H. Cunningham
Fuels Laboratory Supervisor

* Oxygen by Difference.
** Not usually reported as part of the ultimate analysis.

Hazen Research, Inc.
4601 Indiana St. • Golden, CO 80403
Tel: (303) 279-4501
Fax: (303) 278-1528

Date: November 17, 2000
PROJ. # 009-387
CTRL # J449/00
REC'D 10/30/00

Boralex Chateaugay, Inc.
Tony Marciniak
7019 State Route 374
Chateaugay, New York 12920

Sample Number: J449/00-1
Sample Identification: Ash Sample 07/01/00 - 09/30/00

Arsenic, mg/kg	8.6
Barium, mg/kg	1670
Beryllium, mg/kg	<4
Cadmium, mg/kg	5.6
Chromium, mg/kg	81
Lead, mg/kg	130
Mercury, mg/kg	<0.07
Selenium, mg/kg	<0.7
Silver, mg/kg	<2

By:

Gerard H. Cunningham
Fuel Laboratory Manager

The ash was prepared at 600 degrees celsius prior to analysis.
All values are reported on an "As Received" basis.

FILE
009-007-108

Northeast
Generation Services
The Northeast Utilities System

Northeast Generation Services
Analytical Laboratory
P.O. Box 2010
West Springfield, MA 01090-2010
Phone (413) 787-9064 Fax (413) 787-9056
email-shahmp@nu.com

To: P. Basiliere
From: Madhu Shah MS
Re: Analyses of Ash Sample

August 11, 2000

Mass Certification - MA-00071
Conn Certification - PH-0520

Sample Description		Source		Taken	Received	Work Order
3973 Flyash		Schiller		6/30/00	7/12/00	00-1185
Parameter		Results	MDL	Method		Analyzed
N-Aluminum Total		10,334.65 mg/kg	2.00	SW 846 6010B		8/3/00
As-Arsenic Total		16.34 mg/kg	0.50	Sw 846 7060A		8/4/00
B-Boron Total		273.62 mg/kg	5.00	SW 846 6010B		8/4/00
Ba-Barium Total		334.65 mg/kg	2.00	SW 846 6010B		8/3/00
Be-Beryllium Total		1.38 mg/kg	1.00	SW 846 6010B		8/3/00
Ca-Calcium Total		11,417.32 mg/kg	5.00	SW 846 6010B		8/3/00
Cd-Cadmium Total	Less Than	1.00 mg/kg	1.00	SW 846 6010B		8/3/00
Cr-Chromium Total		22.64 mg/kg	2.00	SW 846 6010B		8/3/00
Cu-Copper Total		13.78 mg/kg	2.00	SW 846 6010B		8/3/00
Fe-Iron Total		13,090.55 mg/kg	2.00	SW 846 6010B		8/3/00
Hg-Mercury Total		0.20 mg/kg	0.05	SW 846 7471A		7/25/00
K-Potassium Total		1,082.68 mg/kg	5.00	SW 846 6010B		8/3/00
Mg-Magnesium Total		5,718.50 mg/kg	1.00	SW 846 6010B		8/3/00
Mn-Manganese Total		130.91 mg/kg	1.00	SW 846 6010B		8/3/00
Ni-Nickel Total		20.67 mg/kg	5.00	SW 846 6010B		8/3/00
Pb-Lead Total		15.75 mg/kg	5.00	SW 846 3052		8/3/00
Se-Selenium Total		50.69 mg/kg	0.50	SW 846 7740		8/4/00
V-Vanadium Total		118.11 mg/kg	2.00	SW 846 6010B		8/3/00
Zn-Zinc Total		32.48 mg/kg	1.00	SW 846 6010B		8/3/00
Ammonia-N		50.20 mg/kg	0.20	EPA 350.1		7/20/00
Chloride	Less Than	100.00 mg/kg	100.00	Lachat Method 10-117-07-1-B		7/21/00
Fluoride		10.80 mg/kg	0.20	SM 20th Edition 4500-F-C		7/21/00
Loss on Ignition %		27.70	1.00	D-3174		7/27/00
pH		12.21 S.U.	0.02	EPA 150.1		7/17/00
Sulfate as SO4		2,640.00 mg/kg	100.00	Std. Method 4500 SO4-F		7/24/00
Total Phosphorous		365.16 mg/kg	2.00	SW 846 6010B		8/10/00
Sulfur, %		0.21	0.01	ASTM D-1552		8/11/00

Select Energy

Northeast Generation Services
Analytical Laboratory
P.O. Box 2010
West Springfield, MA 01090-2010
Phone (413) 787-9064 Fax (413) 787-9065
email-shahmp@nu.com

To: M. Hitchko

From: Madhu Shah

February 18, 2000

Re: Analyses of Ash Samples

Mass Certification - MA-00071
Conn Certification - PH-0520

Sample Description
0334 Flyash, FA-00-01

Source
Schiller

Taken 1/12/00 Received 1/17/00 Work Order 00-0087

Parameter		Results	MDL	Method	Analyzed
Ag-Silver Total	Less Than	10.00 mg/Kg	10.00	SW 846 6010B	1/20/2000
Al-Aluminum Total		16,766.47 mg/Kg	2.00	SW 846 6010B	1/20/2000
As-Arsenic Total		16.97 mg/Kg	0.50	Sw 846 7060A	1/21/2000
B-Boron Total		190.12 mg/Kg	0.01	SW 846 6010B	2/18/2000
Ba-Barium Total		176.15 mg/Kg	100.00	SW 846 6010B	1/20/2000
Be-Beryllium Total		1.50 mg/Kg	0.20	SW 846 6010B	1/20/2000
Ca-Calcium Total		9,081.84 mg/Kg	5.00	SW 846 6010B	1/20/2000
Cd-Cadmium Total		1.00 mg/Kg	1.00	SW 846 6010B	1/20/2000
Co-Cobalt Total		5.99 mg/Kg	7.00	SW 846 6010B	1/20/2000
Cr-Chromium Total		41.42 mg/Kg	5.00	SW 846 6010B	1/20/2000
Cu-Copper Total		13.47 mg/Kg	2.00	SW 846 6010B	1/20/2000
Fe-Iron Total		14,021.96 mg/Kg	1.00	SW 846 6010B	1/20/2000
Hg-Mercury Total		206.59 ug/Kg	0.05	SW 846 7471A	1/27/2000
K-Potasium Total		848.30 mg/Kg	5.00	SW 846 6010B	1/20/2000
Mg-Magnesium Total		2,225.55 mg/Kg	5.00	SW 846 6010B	1/20/2000
Mn-Maganese Total		113.27 mg/Kg	5.00	SW 846 6010B	1/20/2000
Na-Sodium Total		538.92 mg/Kg	5.00	SW 846 6010B	1/20/2000
Ni-Nickel Total		37.92 mg/Kg	5.00	SW 846 6010B	1/20/2000
Pb-Lead Total		15.97 mg/Kg	5.00	SW 846 3052	1/20/2000
Sb-Antimony Total	Less Than	0.50 mg/Kg	0.50	SW 846 7041	1/21/2000
Se-Selenium Total		40.92 mg/Kg	0.50	SW 846 7740	1/21/2000
Sn-Tin Total	Less Than	5.00 mg/Kg	10.00	SW 846 6010B	1/21/2000
V-Vanadium Total		151.20 mg/Kg	10.00	SW 846 6010B	1/20/2000
Zn-Zinc Total		32.44 mg/Kg	1.00	SW 846 6010B	1/20/2000
Ammonia-N		50.40 mg/Kg	0.20	SM 20th Edition 4500-F-C	2/28/2000
Chloride	Less Than	100.00 mg/Kg	100.00	Lachat Method 10-117-07-1-B	1/28/2000
Fluoride		1.12 mg/Kg	0.20	SM 20th Edition 4500-F-C	1/21/2000
Loss on Ignition %		22.12	1.00	ASTM D-3174	1/20/2000
pH		12.24 S.U.	0.01	EPA 150.1	1/18/2000
Sulfate as SO4		2,301.40 mg/Kg	100.00	EPA 377.1	1/20/2000
Total Phosphorus	Less Than	5.00 mg/Kg	5.00	Lachat Method 10-115-01-1-C	1/21/2000
Sulfur, %		0.19		ASTM D-1552	1/19/2000

Comments

FLY ASH RECEIVED ANALYSIS

2/22/00

		FLY ASH ANALYSES - 1999									
I.D.	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller	Schiller
DATE	1/6/99	1/14/99	1/22/99	1/29/99	2/9/99	2/18/99	2/25/99	3/25/99	4/2/99	4/12/99	4/20/99
SiO2	56.37	55.12	57.14	54.45	56.16	51.84	50.91	51.58	51.14	50.45	55.18
Al2O3	22.13	22.76	22.59	20.84	22.63	21.89	22.93	22.63	21.87	21.54	21.44
Fe2O3	8.82	8.51	9.28	8.85	10.46	11.80	15.31	13.87	12.48	11.72	7.82
CaO	4.90	4.07	4.03	10.51	4.05	8.07	3.45	4.20	5.12	7.58	6.00
MgO	2.12	2.10	1.70	1.89	1.59	1.66	1.16	1.42	2.06	2.43	2.62
SO3	0.00	0.06	0.02	0.46	0.02	0.10	0.05	0.03	0	0.04	0.00
Na2O	0.74	0.60	0.66	0.65	0.65	0.66	0.67	0.72	0.79	0.75	0.86
K2O	1.47	1.69	1.61	1.57	1.52	1.63	1.69	1.53	1.61	1.6	1.90
P2O5	0.37	0.34	0.33	0.45	0.34	0.41	0.38	0.37	0.41	0.44	0.39
TiO2	0.44	0.51	0.53	0.32	0.60	0.54	0.79	0.73	0.77	0.8	0.52
L.O.I.	47.02	43.68	45.85	44.55	39.52	43.16	40.42	47.40	48.33	32.60	37.27
TOTAL	97.5	86.9	97.9	100.0	98.2	98.6	97.3	97.2	96.3	97.4	97.1
EQ.Na2O	1.71	1.71	1.72	1.68	1.72	1.73	1.76	1.79	1.85	1.80	2.11
C3S	-563.89	-575.33	-582.54	-525.00	-577.21	-525.35	-548.95	-546.86	-532.59	-514.14	-550.18
C2S	591.54	594.92	603.59	552.17	596.46	544.95	560.09	560.43	548.40	532.51	573.24
C3A	43.55	45.75	44.16	40.25	42.27	38.04	34.85	36.50	36.84	37.25	43.58
C4AF	27.14	26.20	28.24	28.93	31.83	35.91	46.59	42.21	37.96	35.63	23.80
S/R	1.62	1.79	1.79	1.63	1.70	1.54	1.33	1.41	1.49	1.52	1.89
LSF	2.58	2.15	2.09	5.75	2.14	4.52	1.52	2.33	2.89	4.35	3.25
Density											

Post-it® Fax Note 7671 | Date | # of pages ▸ 2

To Mike Fitchko	From Allan
Co./Dept.	Co.
Phone #	Phone #
Fax #	Fax #

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

March 13, 2001

Post-it® Fax Note 7671	Date 3/13/01	# of pages ▶ 1
To Cindy Drill	From Liz	
Co./Dept. N-Viro	Co. JHL	
Phone #	Phone #	
Fax # 419-535-7008	Fax #	

N-Viro International Corp.
3450 W. Central Ave., Suite 328
Toledo, Ohio 43606
ATTN: Ms. Cindy Drill

Dear Ms. Drill:

Below are the results of analysis of 1 sample received for examination on February 28, 2001:

Sample I.D. AD49912 Location code: NVIN
Project account code: 427
Location Description: Somerset Flyash
Sample collector: CLIENT Sample collection date: 02/26/01
Lab submittal date: 02/28/01 Time: 08:19

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
SOLIDS, DRY, 104 DEG C	%	98.8	0.01
ARSENIC, TOTAL	mg/dry kg	32.0	2.0
CADMIUM, TOTAL	mg/dry kg	Not detected	1.0
CHROMIUM, TOTAL	mg/dry kg	32.6	2.0
COPPER, TOTAL	mg/dry kg	32.4	2.0
LEAD, TOTAL	mg/dry kg	14.9	2.0
MERCURY, TOTAL	mg/dry kg	Not detected	0.50
MOLYBDENUM, TOTAL	mg/dry kg	6.3	1.0
NICKEL, TOTAL	mg/dry kg	28.6	2.0
SELENIUM, TOTAL	mg/dry kg	47.6	2.0
ZINC, TOTAL	mg/dry kg	48.0	2.0
Multicomponent analysis: PCB			
PCB 1016	mg/dry kg	Not detected	1.0
PCB 1221	mg/dry kg	Not detected	1.0
PCB 1232	mg/dry kg	Not detected	1.0
PCB 1242	mg/dry kg	Not detected	1.0
PCB 1248	mg/dry kg	Not detected	1.0
PCB 1254	mg/dry kg	Not detected	1.0
PCB 1260	mg/dry kg	Not detected	1.0
Surrogate result:	mg/dry kg	---	
0.401 mg/dry kg Decachlorobipheny	mg/dry kg	0.387	

Sample comments:

Per your request of March 6, 2001, PCB was added the parameter list of this sample.

JONES & HENRY LABORATORIES, INC. / 2567 TRACY ROAD, NORTHWOOD, OHIO 43619 / (419) 666-0411

February 14, 2001

N-Viro International Corp.
3450 W. Central Ave., Suite 328
Toledo, Ohio 43606
ATTN: Ms. Cindy Drill

Dear Ms. Drill:

Below are the results of analysis of 1 sample received for examination on February 8, 2001:

Sample I.D. AD48923 Location code: NVIN
Project account code: 427
Location Description: Somerset Power Fly Ash
Sample collector: CLIENT Sample collection date: 01/30/01
Lab submittal date: 02/06/01 Time: 16:00

TEST PARAMETER	UNITS	TEST RESULT	DETECTION LIMIT
SOLIDS, DRY, 104 DEG C	%	100	0.01
ARSENIC, TOTAL	mg/dry kg	17.8	2.0
CADMIUM, TOTAL	mg/dry kg	Not detected	1.0
CHROMIUM, TOTAL	mg/dry kg	29.4	2.0
COPPER, TOTAL	mg/dry kg	27.9	2.0
LEAD, TOTAL	mg/dry kg	13.5	2.0
MERCURY, TOTAL	mg/dry kg	Not detected	0.50
MOLYBDENUM, TOTAL	mg/dry kg	6.9	1.0
NICKEL, TOTAL	mg/dry kg	44.7	2.0
SELENIUM, TOTAL	mg/dry kg	44.6	2.0
ZINC, TOTAL	mg/dry kg	41.6	2.0

Please advise should you have questions concerning these data.

Respectfully submitted,

Fred W. Doering
President

INORGANIC ANALYSIS DATA SHEET

Laboratory: Premier Laboratory, LLC
PL Report No: E012259
Date Received: 12/7/2000

Customer: Somerset Operations, Inc.
Location: Somerset, MA
Project: NPDES Testing

Parameter	Result	DL	Units	Completed	By	Dilution
(3) Flyash (continued)						
Date Collected: 12/6/2000 Matrix: Other						
Trace Metals by ICP by 6010B						
Arsenic	17	0.45	mg/kg	12/13:00	KR	
Barium	240	0.45	mg/kg	12/13:00	KR	
Cadmium	0.094	0.090	mg/kg	12/13:00	KR	
Chromium	14	0.45	mg/kg	12/13:00	KR	
Lead	12	0.18	mg/kg	12/13:00	KR	
Selenium	11	0.45	mg/kg	12/13:00	KR	
Silver	ND	0.090	mg/kg	12/13:00	KR	
Zinc	24	0.45	mg/kg	12/13:00	KR	
Vanadium	47	0.45	mg/kg	12/13:00	KR	
Thallium	ND	0.68	mg/kg	12/13:00	KR	
Nickel	13	0.45	mg/kg	12/13:00	KR	
Beryllium	3.3	0.045	mg/kg	12/13:00	KR	
Antimony	1.5	0.68	mg/kg	12/13:00	KR	
Mercury by Cold Vapor by SW-846 7470, TCLP	ND	0.00020	mg/L	12/11:00	LB	
Mercury by Cold Vapor by SW-846 7471	0.23	0.020	mg/kg	12/14:00	LB	

INORGANIC ANALYSIS DATA SHEET

Laboratory: Premier Laboratory, LLC
PL Report No: E011395
Date Received: 11/9/2000

Customer: Somerset Operations, Inc.
Location: Somerset, MA
Project: NPDES Testing

Parameter	Result	DL	Units	Completed	By	Dilution
(3) Flyash (continued)						
Date Collected: 11/7/000 Matrix: Other						
Trace Metals by ICP by 6010B						
Arsenic	30	0.45	mg/kg	11/14/00	BS	
Barium	220	0.45	mg/kg	11/14/00	BS	
Cadmium	0.13	0.090	mg/kg	11/14/00	BS	
Chromium	25	0.45	mg/kg	11/14/00	BS	
Lead	10	0.18	mg/kg	11/14/00	BS	
Selenium	21	0.45	mg/kg	11/14/00	BS	
Silver	ND	0.090	mg/kg	11/14/00	BS	
Zinc	23	0.45	mg/kg	11/14/00	BS	
Vanadium	77	0.45	mg/kg	11/14/00	BS	
Thallium	ND	0.22	mg/kg	11/14/00	BS	
Nickel	12	0.45	mg/kg	11/14/00	BS	
Beryllium	2.1	0.045	mg/kg	11/14/00	BS	
Antimony	0.96	0.45	mg/kg	11/14/00	BS	
Mercury by Cold Vapor by SW-846 7470, TCLP	ND	0.000020	mg/L	11/15/00	LB	
Mercury by Cold Vapor by SW-846 7471	0.58	0.020	mg/kg	11/15/00	LB	

INORGANIC ANALYSIS DATA SHEET

Laboratory: Premier Laboratory, LLC
PL Report No: E010213
Date Received: 10/5/2000

Customer: Somerset Operations, Inc.
Location: Somerset, MA
Project: NPDES Testing

Parameter	Result	DL	Units	Completed	By	Dilution
(3) Fly Ash (continued)						
Date Collected: 10/3/2000 Matrix: Solid						
Trace Metals by ICP by 6010B						
Arsenic	25	0.45	mg/kg	10/11/00	KR	
Barium	230	0.45	mg/kg	10/11/00	KR	
Cadmium	0.19	0.090	mg/kg	10/11/00	KR	
Chromium	26	0.45	mg/kg	10/11/00	KR	
Lead	16	0.18	mg/kg	10/11/00	KR	
Selenium	2.4	0.45	mg/kg	10/11/00	KR	
Silver	ND	0.090	mg/kg	10/11/00	KR	
Zinc	47	0.45	mg/kg	10/11/00	KR	
Vanadium	220	0.45	mg/kg	10/11/00	KR	
Thallium	0.51	0.22	mg/kg	10/11/00	KR	
Nickel	52	0.45	mg/kg	10/11/00	KR	
Beryllium	2.8	0.045	mg/kg	10/11/00	KR	
Antimony	2.4	0.45	mg/kg	10/11/00	KR	
Mercury by Cold Vapor by SW-846 7470, TCLP	ND	0.000020	mg/L	10/11/00	LB	
Mercury by Cold Vapor by SW-846 7471	0.30	0.020	mg/kg	10/11/00	LB	

INORGANIC ANALYSIS DATA SHEET

Laboratory: Premier Laboratory, LLC
PL Report No: E009259
Date Received: 9/7/2000

Customer: Somerset Operations, Inc.
Location: Somerset, MA
Project: NPDES Testing

Parameter	Result	DL	Units	Completed	By	Dilution
(1) 018						
Date Collected: 8/28/2000 Matrix: Water						
Oil & Grease by 1664A	ND	1.1	mg/L	09/13/00	PW	
Solids, Suspended (TSS) by EPA 160.2	20	1.0	mg/L	09/11/00	JG	
Trace Metals by ICP by 200.7						
Copper	0.011	0.010	mg/L	09/12/00	BS	
Iron	0.38	0.050	mg/L	09/12/00	BS	
Nickel	0.084	0.010	mg/L	09/12/00	BS	
Zinc	0.32	0.010	mg/L	09/12/00	BS	
(2) 002						
Date Collected: 9/6/2000 Matrix: Water						
Oil & Grease by 1664A	ND	1.0	mg/L	09/13/00	PW	
Solids, Suspended (TSS) by EPA 160.2	3.0	1.0	mg/L	09/11/00	JG	
Trace Metals by ICP by 200.7						
Copper	ND	0.010	mg/L	09/12/00	BS	
Iron	0.052	0.050	mg/L	09/12/00	BS	
Nickel	ND	0.010	mg/L	09/12/00	BS	
Zinc	0.015	0.010	mg/L	09/12/00	BS	
(3) Flyash						
Date Collected: 9/6/2000 Matrix: Other						
Trace Metals by ICP by 6010B						
Arsenic	16	0.45	mg/kg	09/13/00	BS	
Barium	210	0.45	mg/kg	09/13/00	BS	
Cadmium	0.19	0.090	mg/kg	09/13/00	BS	
Chromium	24	0.45	mg/kg	09/13/00	BS	
Lead	11	0.18	mg/kg	09/13/00	BS	
Selenium	37	0.45	mg/kg	09/13/00	BS	
Silver	ND	0.090	mg/kg	09/13/00	BS	
Zinc	40	0.45	mg/kg	09/13/00	BS	
Vanadium	88	0.45	mg/kg	09/13/00	BS	
Thallium	0.82	0.22	mg/kg	09/13/00	BS	
Nickel	12	0.45	mg/kg	09/13/00	BS	
Beryllium	1.9	0.045	mg/kg	09/13/00	BS	
Antimony	0.89	0.45	mg/kg	09/13/00	BS	
Mercury by Cold Vapor by SW-846 7471	0.28	0.020	mg/kg	09/14/00	LB	

Parameter	Result	DL	Units	Completed	By	Dilution
(3) Fly Ash (continued)						
Date Collected: 1/4/2001 Matrix: Other						
Trace Metals by ICP by 6010B						
Arsenic	21	0.45	mg/kg	01/11/01	KR	
Barium	240	0.45	mg/kg	01/11/01	KR	
Cadmium	0.095	0.090	mg/kg	01/11/01	KR	
Chromium	15	0.45	mg/kg	01/11/01	KR	
Lead	15	0.10	mg/kg	01/11/01	KR	
Selenium	12	0.45	mg/kg	01/11/01	KR	
Silver	ND	0.090	mg/kg	01/11/01	KR	
Zinc	25	0.45	mg/kg	01/11/01	KR	
Vanadium	61	0.45	mg/kg	01/11/01	KR	
Thallium	ND	0.45	mg/kg	01/11/01	KR	
Nickel	16	0.45	mg/kg	01/11/01	KR	
Beryllium	4.2	0.045	mg/kg	01/11/01	KR	
Antimony	1.9	0.45	mg/kg	01/11/01	KR	
Mercury by Cold Vapor by SW-846 7470, TCLP	ND	0.00020	mg/L	01/10/01	LB	
Mercury by Cold Vapor by SW-846 7471	0.24	0.020	mg/kg	01/11/01	LB	

Northeast
Generation Services
The Northeast Utilities System

Northeast Generation Services
Analytical Laboratory
P.O. Box 2010
West Springfield, MA 01090-2010
Phone (413) 787-9064 Fax (413) 787-9056
email-shahmp@nu.com

To: H. Person
From: Madhu Shah
Re: Analyses of Ash Samples

February 21, 2001

Mass Certification - MA-00071
Conn Certification - PH-0520

Sample Description		Source			Taken	Received	Work Order
0672 Sydney Ash		Mt. Tom			1/30/01	1/31/01	01-0203
Parameter		Results		MDL Method			Analyzed
Ag-Silver Total	Less Than	1.00	mg/Kg	10.00 SW 846 6010B			2/14/01
Al-Aluminum Total		14,652.01	mg/Kg	2.00 SW 846 6010B			2/14/01
As-Arsenic Total		2.39	mg/Kg	0.50 Sw 846 7060A			2/13/01
Ba-Barium Total		323.26	mg/Kg	2.00 SW 846 6010B			2/14/01
Ca-Calcium Total		5,412.09	mg/Kg	5.00 SW 846 6010B			2/14/01
Cd-Cadmium Total		1.01	mg/Kg	1.00 SW 846 6010B			2/14/01
Cr-Chromium Total		28.39	mg/Kg	2.00 SW 846 6010B			2/14/01
Cu-Copper Total		45.24	mg/Kg	2.00 SW 846 6010B			2/14/01
Fe-Iron Total		14,826.74	mg/Kg	2.00 SW 846 6010B			2/14/01
Hg-Mercury Total		0.15	mg/Kg	0.05 SW 846 7471A			2/9/01
Mg-Magnesium Total		886.45	mg/Kg	1.00 SW 846 6010B			2/14/01
Mn-Manganese Total		73.26	mg/Kg	1.00 SW 846 6010B			2/14/01
Ni-Nickel Total		34.34	mg/Kg	5.00 SW 846 6010B			2/14/01
Pb-Lead Total		19.23	mg/Kg	5.00 SW 846 3052			2/14/01
Se-Selenium Total		4.32	mg/Kg	0.50 SW 846 7740			2/13/01
V-Vanadium Total		108.06	mg/Kg	2.00 SW 846 6010B			2/14/01
Zn-Zinc Total		45.97	mg/Kg	1.00 SW 846 6010B			2/14/01

Comments

Northeast
Generation Services

The Northeast Utilities System

Northeast Generation Services
Analytical Laboratory
P.O. Box 2010
West Springfield, MA 01090-2010
Phone (413) 787-9064 Fax (413) 787-9056
email-shahmp@nu.com

To: G. Miemiec

From: M. Shah

Re: Analyses per T.C.L.P.

December 1, 2000

Work Order
00-1964

Sample No.	Source	Source Description	Date Received	Date Sampled
5721	Mt. Tom	Precip. Flyash Composite	11/08/00	11/08/00

Parameters		Results
Flash Point °F		N/A
Total Halogens		N/A
Extractables		
Ag-Silver	Less Than	0.1 mg/L
As-Arsenic		0.026 mg/L
Ba-Barium	Less Than	1 mg/L
Cd-Cadmium	Less Than	0.01 mg/L
Cr-Chromium	Less Than	0.1 mg/L
Hg-Mercury	Less Than	0.0005 mg/L
Pb-Lead	Less Than	0.1 mg/L
Se-Selenium		0.338 mg/L
pH		11.35 S.U.

Method EPA Procedure-SW-846, Method 1311, July 1992

Mass Certification - MA-00071

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email-shahmp@nu.com

To: G. Miemiec

From: M. Shah

December 1, 2000

Re: Analyses per T.C.L.P.

Work Order
00-1964

Sample No	Source	Source Description	Date Received	Date Sampled
6720	Mt. Tom	Silo Flyash	11/08/00	11/08/00

Parameters		Results
Flash Point °F		N/A
Total Halogens		N/A
Extractables		
Ag-Silver	Less Than	0.1 mg/L
As-Arsenic		0.026 mg/L
Ba-Barium	Less Than	1 mg/L
Cd-Cadmium	Less Than	0.01 mg/L
Cr-Chromium	Less Than	0.1 mg/L
Hg-Mercury	Less Than	0.0005 mg/L
Pb-Lead	Less Than	0.1 mg/L
Se-Selenium		0.257 mg/L
pH		10.98 S.U.

Method EPA Procedure-SW-846, Method 1311, July 1992

Northeast
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Analytical Laboratory
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West Springfield, MA 01090-2010
Phone (413) 787-9064 Fax (413) 787-9056
email-shahmp@nu.com

To: G. Miemiec

From: M. Shah MS

October 5, 2000

Re: Analyses per T.C.L.P.

Work Order
00-1731

Sample No	Source	Source Description	Date Received	Date Sampled
5996	Mt. Tom	Flyash Silo	09/29/00	09/29/00

Parameters		Results
Flash Point °F		N/A
Total Halogens		N/A
Extractables		
Ag-Silver	Less Than	0.1 mg/L
As-Arsenic	Less Than	0.005 mg/L
Ba-Barium	Less Than	1 mg/L
Cd-Cadmium	Less Than	0.1 mg/L
Cr-Chromium	Less Than	0.05 mg/L
Hg-Mercury	Less Than	0.0005 mg/L
Pb-Lead	Less Than	0.1 mg/L
Se-Selenium		0.051 mg/L
pH		8.99 S.U.

Method EPA Procedure-SW-846, Method 1311, July 1992

Appendix I – Air Collection System Drawing H-11